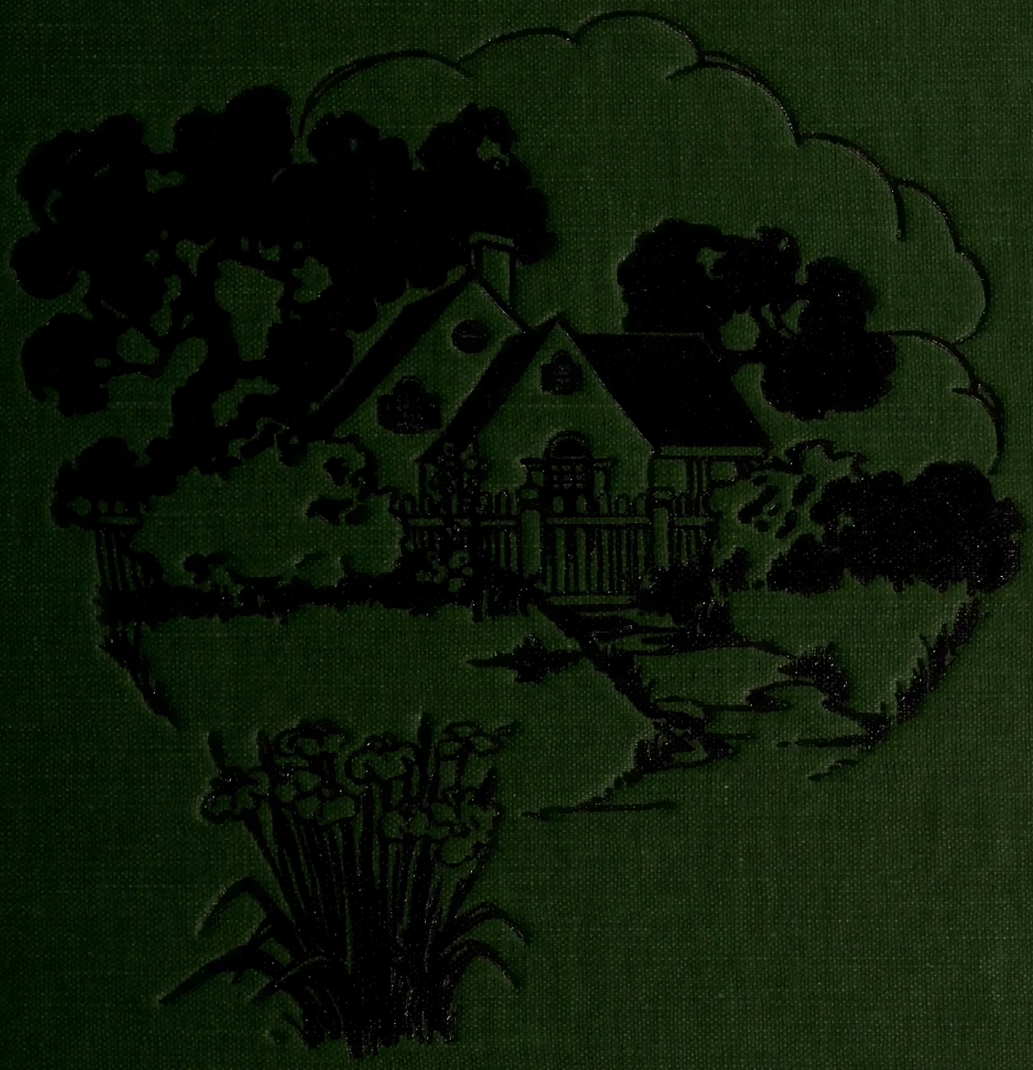
GARDEN MAGAZINE & HOME BUILDER



Vol. XXIII. No. 1. FEBRUARY, 1916 15 Cents a Copy

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Getting an Early Start *Early Flowering Trees and Shrubs* *Sowing Seeds Indoors*

THE GARDEN MAGAZINE

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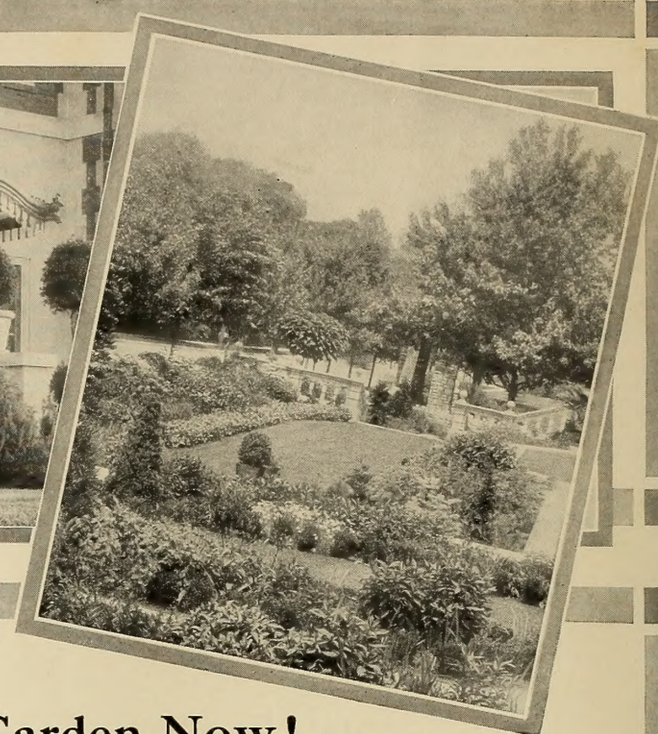

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Then plant the world famous Wagner Park Flowers making it a perfect picture.

WE HAVE everything for garden beauty and picturesque landscape effects—you've only to choose.

The vast acres of Wagner Nurseries have for years been supplying the needs of thousands of flower lovers in all parts of the United States and some foreign countries with Wagner roses, hardy plants, shrubs, trees and evergreens.

We deliver plants everywhere in the United States at prices which are a happy surprise to those who want the choicest flowers.

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Our instructive catalogue will be invaluable to you whether your problem is a tiny suburban lot, a vast country place, or "just an old-fashioned garden".

Plan early. Don't delay. Write now for free catalogue No. 88

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"The Story of a Woman's Courage"

Life and Gabriella

By ELLEN GLASGOW, Author of "Virginia," "The Battle-Ground," etc.

A BOOK of power—of the human mastery of Fate. A tale that will make as profound an impression as "Virginia" for its sanity, for its knowledge of life, and for the gentle, fearless woman who steps out of its pages with the fruits of victory in her hands.

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DOUBLEDAY, PAGE & COMPANY GARDEN CITY, NEW YORK

New and Rare Hardy Plants

Not Obtainable Elsewhere

New Trees, Shrubs and Vines from the wilds of China, collected by Mr. E. H. Wilson, of the Arnold Arboretum.

Lonicera Maackii var. podocarpa

The finest of all the Bush Honeysuckles; beautiful in fruit, which it holds through December. Price $1.00 each; $10.00 dozen.

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We have also under preparation a list of about 1000 species and varieties of New and Rare Hardy Plants, mostly introduced by the Arnold Arboretum, which are now ready for sale. Persons desiring this list, when published, should register their names now.

R. & J. Farquhar & Co., 9 South Market Street, Boston, Mass.

Lonicera Maackii var. podocarpa.

The HOME of HEATHER
ANNOUNCES ITS 1916 EDITION OF THE
HEATHERHOME SEED AND PLANT BOOK
A MASTERPIECE OF GARDEN CATALOGUES

There are no illustrations, yet the book is as full of color as a garden in June. By word pictures alone, simple and full of meaning, it delights and informs. It will tell you just the things you have always wanted to know. 300 pages, antique paper, bound in Heatherhome blue, in a box free for the asking. It is a beautiful, fascinating book and we *guarantee* your pleasure in it just as we *guarantee* to grow, and to be as described, every seed and plant that comes from the Home of Heather.

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PLANTSMEN—SEEDSMEN
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All Roses Look Alike

on paper — but Peterson Roses are different — superior — and then plus.

They're the result of many years of enthusiastic, painstaking effort by one who has made Rose-growing a lifelong hobby, passion—call it what you will.

And right here in Fair Lawn, N. J., we are admittedly now growing the strongest, finest Rose plants the world has ever seen.

"Peterson Roses" have revolutionized outdoor rose-growing — have caused success to rise out of the ashes of former failures, as thousands of enthusiastic patrons all over this country and Canada have experienced.

If, this year, you want "real roses" in your garden all Summer and Fall, send now for a 1916 copy of

"A LITTLE BOOK ABOUT ROSES"

an exquisite publication dear to the heart of every Rose lover who knows it.

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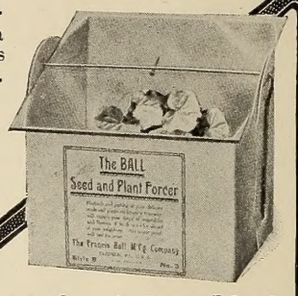
DON'T WAIT ALL SUMMER

for your Vegetables and Flowers to Mature.

Get your seeds and plants started a month ahead and enjoy the pleasures of your garden just that much earlier.

Here's a new method in modern horticulture thats no longer an experiment; Uncle Sam endorses and has used these devices since their first introduction. All the big State colleges are enthusiastic and recommend them. Thousands of commercial and amateur gardeners all over the United States and Canada are making big money by having their produce in market weeks earlier than they ever had before.



For Tomatoes & Tall Plants

For Melons & Low Plants

THE BALL SEED AND PLANT FORCER

A WONDERFUL LITTLE INVENTION PRODUCING REMARKABLE RESULTS

The wonderful contrast of these two Peonies, (one forced with a tall Plant Forcer, and the other not forced) is but one instance of the marvelous results produced by the use of my methods and devices.

These little devices give your seeds and plants the same protection as if they were growing in the green house; when taken off you'll have a transformation that you never dreamed of.

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I want to tell you more about these little wonder workers, and also about several other new inventions for the progressive gardener, including my marvelous system of growing and blanching Celery (without the hard work of banking with soil) that will be BIGGER, WHITER and CRISPER than any you ever saw before.

My big FREE BOOK tells you all. Just send me your name and address on a post card and I will send YOU YOUR COPY by return mail.

THE BALL MFG. CO. DEPT. E. GLENSIDE, PA.

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It contains complete description of the latest *novelties* and *specialties* in flowers and vegetables, as well as *standards.*

All plants described are grown from superior strains, selected from types that we have tested with splendid results.

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The following specials are offered to prove to you the high quality of our seeds.

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Salpiglossis—One packet each of Purplish Violet, Pink, Light Blue (veined gold), Golden Yellow, Scarlet, Brown and Gold. (6 packets in all) ..... **50c. prepaid**

Giant Sweet Sultan (Centaurea Imperialis)—One packet each of White, Pink, Purple, Lilac and Rose, (5 packets in all) ..... **50c. prepaid**

Combination Offer, $1.00

One collection each of Asters, Salpiglossis and Giant Sweet Sultans (16 packets of seed in all), which if purchased separately would cost $1.50, sent **prepaid** anywhere in the United States for **$1.00.**

A copy of our **1916 Spring Catalogue** sent free upon request. Kindly mention Garden Magazine when writing.

Stumpp & Walter Co.

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CEDAR ACRES GLADIOLI

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describing many new varieties and giving the real truth about each.

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ROSES
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300 acres of Nursery. 300,000 feet under Glass. We Plan and Plant Grounds and Gardens Everywhere. Visit Our Nursery, 8 miles from New York, or write for Illustrated Catalogue No. 25.

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The Sensational Yellow Cactus Dahlia

GOLDEN GATE

Winner of Numerous First Prizes and Certificates of Merit

The Best All-Round Dahlia in Existence

This dahlia came from a seed in a packet of Burbank's collection of Dahlia seeds nine years ago and has caused a sensation wherever exhibited. Its most recent awards were at the New York show of the American Dahlia Society last fall.

Introduced by us in 1914 it is now considered by many to be the finest, largest and best blooming Dahlia in cultivation. Three to six immense large blooms open at one time, on extra long stems. An exceptionally good keeping cut flower. The beautiful dazzling, golden yellow color of the flowers will be most delightful. This Dahlia is drought, blight and insect proof and has been known to bloom where all others fail. It is to dahlias what the King Humbert is to Cannas or American Beauty is to Roses.

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If you order direct from this advertisement and mention the Garden Magazine we will send one whole root of Golden Gate at the special price of fifty cents postpaid, or for $5.00 a dozen. Send your order in now and have Golden Gate blooming in your garden this year.

Our Dahlias were given three first prizes at the American Dahlia Society show.

In our advertisement here next month, we will list and describe a group of new peony type Dahlias in root form. These are all of this year's introductions.

Our Catalog is now on the press
Write for it now

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Feed Your Soil Healthy Food

All soil contains some Humus but seldom enough to grow beautiful green lawns and luxuriant plants. Soil needs

REX TRADE **HUMUS** MARK
Yeast of the Earth

—a wonderfully, beneficial, health-giving food for **Lawns, Plants** and **Shrubbery**.

It is rich in the elements of plant food, ***absolutely odorless***, clean and pleasant to handle. All the objectionable features of barnyard manure eliminated, yet a ***permanent plant food*** and ***soil builder***. It gives renewed life to starved vegetation.

Rex Humus is being used by many country estates, golf courses, suburban gardens with excellent results.

Try a bag and prove its value to your own satisfaction.

1 Bag $1.00 6 Bags $5.00

(Each Bag Weighs 100 lbs.)

Any information you may wish, ask our experts. They are willing and ready to advise you. ***Write for pamphlet and prices by the ton or carload.***

PETERSON, SINCLAIRE & MILLER, Inc.
25 West 45th Street New York City

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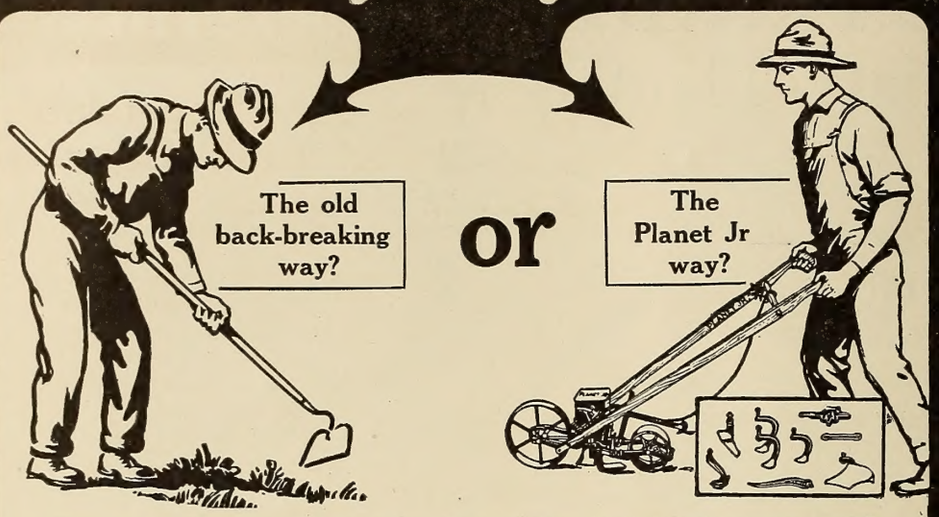

You can't afford to cultivate in the old slow back-breaking way. The Planet Jr way takes the drudgery out of labor, and produces bigger, better crops. Planet Jrs are the greatest time-savers ever invented for farm or garden, and the most economical cultivating tools you can use.

Planet Jr tools are the product of a practical farmer's inventive genius and manufacturing experience of half a century. Last a lifetime. Fully guaranteed.

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New 72-Page Catalog (184 illustrations) **free!**

Describes over 70 tools, including 12 entirely new ones, and improvements to our Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard-, Beet-, and Pivot-wheel Riding-Cultivators. Write postal for it today.

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Planet Jr. Hand Cultivators

Twenty-five years specializing in one line, ought to count for something, if concentration of energy brings results.

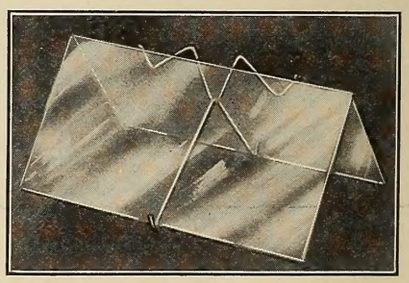
We Have Specialized in

Chrysanthemums

Since 1890, a large percentage of these flowers shown in the Florists' Shops and at the Flower Shows are of our origin.

We are the only firm in America growing Chrysanthemums exclusively. Ask for our catalogue. A postal will bring it.

ELMER D. SMITH & COMPANY
ADRIAN, MICHIGAN



—sow your seeds NOW

BE INDEPENDENT of weather and seasons! You can sow early—even in March—long before the end of Spring frosts and rains, with every assurance of success—if you use the CONTINUOUS SEED AND PLANT FORCER. Briefly, the Forcer is a clever combination of ordinary glass and wire—simple, light, inexpensive, yet the greatest boon ever conferred upon gardeners, amateur or professional. Provides perfect protection from insects, birds and mice, and positively insures earlier and sturdier plants. You need these forcers whether your garden is large or small. Send to-day for illustrated leaflet. **Sample Forcer 15c.**

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131 Hudson St. (Dept. C.) New York

Dwarf Trees for the Home Garden

These specimens are eight years old, root-pruned, and have borne fruit in the nursery; ready for early shipment—send for special list. We have all good varieties of standard and dwarf Apple, Pear and Peach trees. Write for our general catalogue.

SAMUEL FRASER NURSERY, INC.
173 Main St. Geneseo, N. Y.

Destroy Tree Pests Kill San Jose Scale, Apple Scab, Fungi, Lice, Bugs, and other enemies of vegetation by spraying with

GOOD'S CAUSTIC POTASH FISH OIL SOAP No. 3

Does not harm the trees—fertilizes the soil and aids healthy growth. Used and endorsed by U. S. Dept of Agriculture **FREE** Our valuable book on Tree and Plant Diseases. Write for it today.

JAMES GOOD, Original Maker, 931 N. Front Street, Philadelphia

Free Fruit Book

Every farmer and fruit grower should have a copy. Learn what *Northern* grown trees will do in your orchard. Backed by 37 years' experience and guaranteed. Send for this

1916 Orchard Catalog

of our own-grown apple, peach, pear, plum, cherry and quince trees. Also small fruits, ornamentals and shrubs. All well-rooted, clean and thrifty. Large, firm texture, hardy, and vigorous. Explains our Service department. Gives planting directions, plans for farm or suburban garden, etc. Write for your copy to-day.

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23 Oak Street Dansville, New York

The Winfield Raspberry

Berry on Quarter Shows Actual Size of "Winfield"

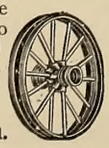
Now being planted by the thousands commercially — because it lives and thrives **and pays** through every condition and in all soils—does not winter-kill, and yields big regularly in spite of summer drouth—original patch has produced nine crops without a failure. You can do as well—easily. Send today for full information. Folder, Prices, and Big Fruit Book telling all about this wonderful berry—how to raise it—how it's larger, finer, better fruit. Always nets you $1 to $1.50 more per crate. No charge. Just send your name.

THE WINFIELD NURSERIES
401 Elm Street Winfield, Kans.

Write for Book Today

FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.



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accurately describing all the best, new and standard varieties in Cactus, Decorative, Giant Flowering, Show, Fancy, Pompon, Paeony, Duplex, Collarette, Anemone, Century and Single. Natural color reproductions of New Decorative Dahlia "Minnie Burgle" and New Paeony Dahlia "F. R. Austin." Beautifully illustrated. The leading Dahlia catalogue.

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For Your Garden

This year do away with green manure. Get rid of its unpleasant odor and the bother of sprouting weed seeds. Use

BOSTON HUMUS

odorless, weed seedless and rich in fertilizing properties. It is a plant stimulant and a permanent soil builder in one. Tell us the size of your gardens and lawns and we will advise you. A postal will bring you information.

Special Trial Offer: 5 bags for $5. Freight prepaid East of Mississippi.

BOSTON HUMUS CO. East Lexington, Mass.

My New 1916 Books FREE!

Send for These Safe, Dependable Guides to Better Fruit Growing

"Inside Facts of Profitable Fruit Growing" A new book, telling how to lay out an orchard, dig holes, dynamite, preparation of ground, how to plant, prune, fertilize, spray, general care and cultivation of fruit trees, small fruits, shrubbery, etc. Shows actual methods followed by the most successful fruit growers in various parts of the country—methods not generally known—and which have made thousands of dollars for growers who follow them. Coupon brings you copy FREE.

BOTH FREE

160 Page Fruit Tree Catalog Describes best, tested, profitable fruits; gives ripening season, growing habits, where each kind does best, which are best money makers; peach ripening guide, etc. Handy pocket size; 160 pages. Lowest direct from nurseries prices on all best apple, pear, peach, plum, cherry, apricot, quince, grape, bush fruits, strawberry, roses, shrubs, ornamentals, hardy perennials, etc.

Hardy, Big-Rooted Ozark Mountain Grown Trees for New York, New England and All Northern Planting

William P. Stark trees are famous for their hardiness, vigor and heavy, well-branched, wide-spreading root-systems. These larger, heavier roots give the trees a quicker start, a faster growth and bring them into bearing very young—often a year to two years sooner than trees with only average roots.

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No agents, no "plate-book men." Our catalog is our only salesman. Prices in plain, bold figures. Same low growers' prices to all. Highest grade, DOUBLY GUARANTEED TRUE-TO-NAME trees at a big saving.

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You get your trees direct, without rehandling or opening of package. They reach you in perfect condition, fresh, full of life and vigor, and start right out with a healthy, vigorous growth. Safe arrival guaranteed anywhere in the world.

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Write me about your orchard plans. I shall be glad to help you. Getting started right is most important. My 35 years' experience is at your service without charge.

Delicious Apple
Brings $3 per box

National dessert apple—wonderful money maker. Hardy, vigorous grower, succeeds everywhere.

Baldwin and Other Good Apples

Baldwin—Ask for improved strain from Mr. Hale's famous orchard. McIntosh, R. I. Greening, Gravenstein. No. Spy, Wealthy, etc.

J. H. Hale—Greatest Peach Moneymaker

Sold at $2.50 per bushel when Elbertas were ranging $1.25 the past season—larger, better quality, better shipper than Elberta. Grown and sold exclusively by Wm. P. Stark, Stark City. Look for trade-marked tag with J. H. Hale signature on every tree. **Early Rose Peach**—Best of all early Peaches, wonderful profit-producer; introduced by us for first time this season.

Montm'cy Cherry

Most widely planted. Also best sours and sweets; well-branched 1 year trees with heavy 2 yr. root-systems.

Everbearing Strawberries—$5 to $7 Per Crate

Proved commercial success. Bear first year fruit until freezing weather. Special prices on Progressive, best everbearing. Tremendous demand for plants. Write at once, have plants reserved.

WILLIAM P. STARK NURSERIES
Box 888, Stark City, Mo.

Please send me free books, "Inside Facts of Profitable Fruit Growing," and 160-Page Fruit Tree Book.
I am interested in the following number of trees of:

...J. H. Hale Peach	...Delicious Apple	...Strawberries
...Apples	...Plums	...Asparagus
...Peaches	...Cherries	...Roses
...Pears	...Bush Fruits	...Ornamentals

NAME.....

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(Give St. No. or R. F. D.)

The Readers' Service is prepared to advise parents in regard to schools

MICHELL'S SEED BOOK

This complete garden guide of 240 pages is now ready. Not just a catalog—but a helpful book on flowers, vegetables, hardy perennials, annuals, vines and pot-grown roses, and everything else which makes garden success easy.

Thoroughly illustrated, contains many cuts in natural colors. Tells fully how and when to plant. Describes the Michell plan of furnishing

Valuable Medals Free

to Civic Organizations, School Garden Associations, etc., for achievement in Horticulture, Agriculture, and Poultry Raising.

This book is FREE—Write for your copy today

Michell's Invincible Asters

The finest of all asters. Healthy, robust plants producing a profusion of perfectly-double, massive, peony-formed asters, on stems 2 feet long. Special collection, one package each of white, rose-pink, lavender, blue and crimson, 40c. Single packet, any color, 10c.

HENRY F. MICHELL CO.
520 Market St. Philadelphia

Finest Hardy Garden Lilies

"Plant in Early Spring"

Lilium Auratum (Gold Banded Lily)	per doz.	$1.50
Lilium Speciosum Melpomene	" "	1.50
Lilium " Rubrum	" "	1.50
Lilium " Magnificums	" "	1.50
Lilium Elegans incomparable	per bulb	.50
Lilium " atrosanguineum	" "	.50

The last two varieties are very rare and very choice

Send your order with cash to the

DeKalb Nurseries
Adolf Muller Norristown, Pa.

I offer for the first time a collection of the choicest

Gladiolus Bulbs

obtainable in this country

My handsome and instructive catalogue "The Gladiolus" will be sent free upon request.

MARY LOUISE HAWKINS
LANCASTER, MASSACHUSETTS

If you wish information about dogs apply to the Readers' Service

Money in Cucumber Pickles

ABOUT fifteen years ago a man in Somerset County, Maine, a Mr. F. M. Bean, who lives about six miles from market decided that a lot of pickles were eaten and somebody had to grow the cucumbers for them. He decided that he might at least try them as a crop and the first year he planted about a quarter of an acre. In the fall he pickled them in vinegar in half barrels. He tried the local market and found that he would have no difficulty in disposing of his crop. The first year he raised about one hundred bushels, including five sizes, and, in adding up his profits, found that they paid him better than anything else he had raised on the farm.

Cucumbers for pickles are especially adapted for growing in any part of the New England States, where the springs are late and the ground is damp. They need not be planted until as late as June 15th; All that is necessary is to plant early enough so as to give the seeds six weeks in which to get their growth and avoid the first fall frosts.

While they will grow in almost any soil, of course, the richer the ground the better the crop will be. The ground should be plowed, if possible, in the fall and then in the spring a top dressing should be put on and the ground harrowed thoroughly. Phosphate will answer for fertilizer but it is better to have barn dressing. The ground should be harrowed over several times and should lay a few weeks and just before planting the cucumbers should be harrowed again.

RETURNS FROM AN ACRE

It has been found that the average crop of an acre of cucumbers in five sizes is about 600 bushels. These sizes include the very small ones to those of about five inches long. It takes about 800 cucumbers or one and one half bushels of the smaller size for what is known as the half-keg. The profit from this acre will be about $500. And the cost of the crop would be about as follows:

Plowing	$2.50
Harrowing	2.50
Dressing	10.00
Sowing seed	1.50
Hoeing	5.00
Picking every other day for season, 4 men @ $1.50, average	100.00
Vinegar, $.14 per gallon	280.00

A half-barrel of cucumber pickles sells at wholesale for $4 or $5. It usually takes about six weeks to harvest the cucumbers, four men being employed every other day. If fertilizer is used instead of barn dressing the cost would be more than for the dressing, as about a ton of fertilizer would be used which would cost about $40.

SOWING THE SEED

In sowing the seed no universal method has been instituted. Mr. Bean believed that a method should be invented to sow the cucumber seeds in some other way than by dropping them through the fingers. So he took a round pasteboard box and cut small holes in the bottom about an inch apart. He attached a handle on the inside of the box. With the seed in the box he walks along and shakes the seed-dropper by turning the handle, when the required number of seeds will drop out into the hill. With this method Mr. Bean can plant his acre in about a day's time.

The hills should be about four feet apart and the rows about the same distance. The plants should be hoed about the same as corn and should be gone over about three times in the season. The more the piece is hoed the better it will grow, especially if it is a dry season. After the seed has been dropped it should be covered about the same as corn.

In fifteen years' experience Mr. Bean has found that this crop is worth more to him than any kind of fruit growing because it is very seldom that there is a season when the crop cannot be raised. If the spring should be late, the time for planting can be planned; it takes only six weeks to grow the cucumbers and there is no kind of fruit growing where this can be done. With the same amount of labor there is more profit.

Skowhegan, Me. JOHN E. TAYLOR.

Fottler, Fiske, Rawson Co.

Garden Annual for 1916 is compiled especially for those interested in Gardening. Some of the special features:

Summer Flowering Bulbs

It takes 42 Pages to describe and illustrate them with half-tones.

Dahlias and Gladiolus

We are specialists in these, having the largest list in this country; it takes *34 pages* to describe these with 54 half-tone illustrations.

Six pages are devoted to *Asters* and *Sweet Peas* and 33 pages to *Flower Seeds* comprising the very best in existence.

Vegetables require 60 pages to describe and illustrate with half-tones.

Thirty pages are devoted to our plant and Shrub Department. This includes Roses, Perennial Plants, Shrubs, Vines, Hedge Plants, Evergreens, Fruits.

Twenty-four pages we devote to Fertilizers, Insecticides, Spraying Implements, Lawn Mowers, Sundries, etc.

Seven pages to Poultry Supplies.

Franklin Park Lawn Seed

Free from Chaff. The cleanest. The highest Purity Test. The highest in price. The cheapest in the end.

If you will mention this magazine we will mail the Garden Annual free to you.

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An average of $500 to $700 an acre. Think of it. From 10 year old apple trees. And this is the sixth paying crop. **You owe it to yourself to learn what this great apple will do in your orchard.**

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Bigger and Better than the old Winesap

After ten years of testing we offer this year for the first time a limited number of trees budded direct from the Alter orchard. If you want an apple that will make you more money and make it quicker than any apple you can grow — plant Silver Medal Winesap.

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½ to ½ larger than old Winesap.
Solid dark red color that commands high prices.
Bear from 1 to 3 years earlier.
Trees loaded every year.
Keeps a year in storage.

One of the few great shippers.
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Has no superior for cooking.
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America's favorite apple.

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The price will be right—the goods will be right—they will be packed and shipped right.

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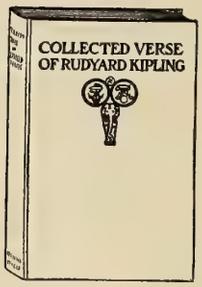

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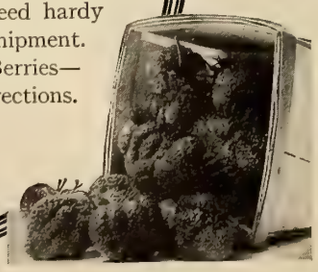

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MANY a visitor to England has returned with a mingled feeling of despair and envy when remembering the charming floral profusion of the English Gardens.

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For over one hundred years, Sutton & Sons have been the most noted seed house in England, their customers ranging from England's Kings and Queens, down to the smallest cottager.

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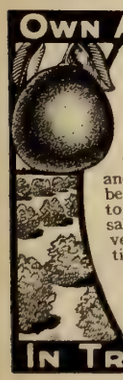

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30 Varieties in all colors, $1.50 per doz.

12 New Varieties of special merit, $3.00 per Dozen.

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everywhere, will welcome our 1916 Anniversary catalog. It marks our 60th year as growers of Honest Seeds. Your free copy is ready. Send for it today. Its 82 pages describe and illustrate a multitude of varieties for a wonderful home-garden. Our seeds are grown on our own farms, and under expert direction. Since 1856 they have brought success in thousands of vegetable and flower gardens. This year we make a very special offer of

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EVERGREENS FOR THE SOUTH

Our stock consists of a large assortment of Evergreens and Flowering Shrubs, home grown, and particularly adapted to Southern Climate and soil conditions. Our trees don't stand still—they grow.

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INFLUENCED by the enthusiasm of my customers and my own love of flowers, I have arranged two exceptional offers of Gladioli.

These are not clearance offers of unnamed varieties. Every one is a favorite. No finer stock is sold.

Send for catalog giving full description of our choice selections. Gladioli, Dahlias and Tuberous Begonias.

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10 each of these 10 Gladioli varieties, for $2. Not mixed all together, but each variety packed by itself. Also sold separately by the 100 or 1000.

	100	1000
AMERICA, finest pink, large flowers	$1.50	$12.
AUGUSTA, white slashed with carmine	1.75	14.
BARON HULOT, beautiful, rich blue	2.	18.
BRENCHLEYENSIS, brilliant vermilion scarlet	1.50	12.
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MRS. FRANCIS KING, flamingo scarlet, large	2.	18.
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BEAUTIFUL MIXTURE, of fine varieties	3.	25.

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Here is real cream. Your chance to get the very finest Gladiola productions of recent years. It contains just the ones I would specially point out to you blooming in my gardens. **Five of each, packed by itself. 60 for $5.** Regular value $6. Or make your selections for 10 or 100 of any separate ones.

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EMPRESS OF INDIA, velvety crimson maroon, large	.45	4.
EUROPA, finest pure white, large and beautiful	.90	8.
GOLDEN WEST large orange red, glorious	.50	8.
LIEBESFEUR, brilliant scarlet, very large	2.	18.
LOVELINESS, creamy flesh pink, large and beautiful	2.	18.
NIAGARA, soft primrose yellow, very large	.90	7.
PANAMA, rich glowing pink large and beautiful	.90	7.
PEACE, white with pale lilac feathering	.90	8.
SCHWABEN, shimmering light yellow, beautiful	1.25	12.
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PINK PERFECTION, rich blush pink, very large	.90	8.

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Large White Pine for Service Screens

Evergreens can be planted in February when the landscape needs their refreshing color.

Select large shade trees for early spring planting. You will get the best trees if you order now.

Everything from Hicks guaranteed to grow satisfactorily. Send for Home Landscapes.

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A Magazine Founded Solely to Help the Garden Enthusiast

THE GARDEN MAGAZINE

A SUBSCRIPTION to The Garden Magazine brings you returns that are definite and easy to trace. By reading it throughout the season you not only can add to your pleasure and profit, but can have a better garden for less money and labor, no matter what the scale is on which you operate.

The science of gardening moves as fast as other sciences nowadays. The survival of the fittest is a process that is going on every day, and it applies nowhere more closely than in the garden. To make a successful gardener it is essential that you keep up-to-date in knowing what are the successful survivors, both in plants and in methods. The best way to do this is to read the only successful periodical of its kind, The Garden Magazine.

Partial List of Contents For March

Flowering Cherries and Crabapples
By "Chinese Wilson"

Everyone who takes the slightest interest in horticulture must know something of the far-reaching results of E. H. Wilson's travels in China, and how the number of trees and shrubs in the temperate portion of North America was doubled by the new species which he introduced. In this article he tells for the first time about the cherries that he found there.

Easy Gardening in Difficult Places
By Stephen Hamblin

This is the first of a series in which Mr. Hamblin comes to the rescue of those who get no benefit from the advice aimed at the average gardener, for the reason that their gardens have not the average soil. This article is addressed to those who try to get results in sand, and contains a surprisingly extensive list of plants that flourish in sandy soils.

Budding and Grafting

Many gardeners are only beginning to realize the results that they can get by the use of these processes in remaking decrepit old trees, or changing over poor young ones. This is an article of the how-to-do-it variety.

The Second of Mr. Adolph Kruhm's Series on Better Vegetables

Next month he takes up lettuces. The article ought to appeal especially to any one who has tried to make a selection from the 400 odd varieties listed in the seed catalogues, all of which, according to those same catalogues are "superb," "early," and possessed of all the good qualities, but which in many cases seem to be very much alike to the grower. Mr. Kruhm gives two tables of the best kinds to grow, according to the end in view, together with a time table telling when to plant for definite crops.

Raising Flowers for Roadside Sale—By F. F. Rockwell

It isn't so easy to make money by raising flowers, but if you have ingenuity and persistence you can do it. Here is one way.

Planting Tables

Most old subscribers can tell of the tremendous usefulness of these tables that appear annually in the March issue. This year they are revised in the light of a thorough and painstaking test conducted for eight years.

The Reminder for the Month

Is a graphic bit of advice timed to reach you just at the right moment.

Readers' Service Department

The benefit that you could get from this service would, in itself, more than repay you the price of your subscription. Every one of the knotty gardening problems that bother you throughout the season you can shift to the shoulders of our corps of garden and landscape experts. All that their advice costs a subscriber is the trouble to write for it, and each query gets careful consideration and a prompt reply by mail.

Couldn't you use this service?

Your Last Chance to Subscribe Before the Season Opens

A SPECIAL DOLLAR OFFER For $1.00 we will send you the next nine issues of The Garden Magazine, beginning with the March number. If you are an old subscriber here is a chance to make a lasting friend of some fellow gardener by introducing him to The Garden Magazine.

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Enclosed please find $1.00 for which send the next nine issues of The Garden Magazine.

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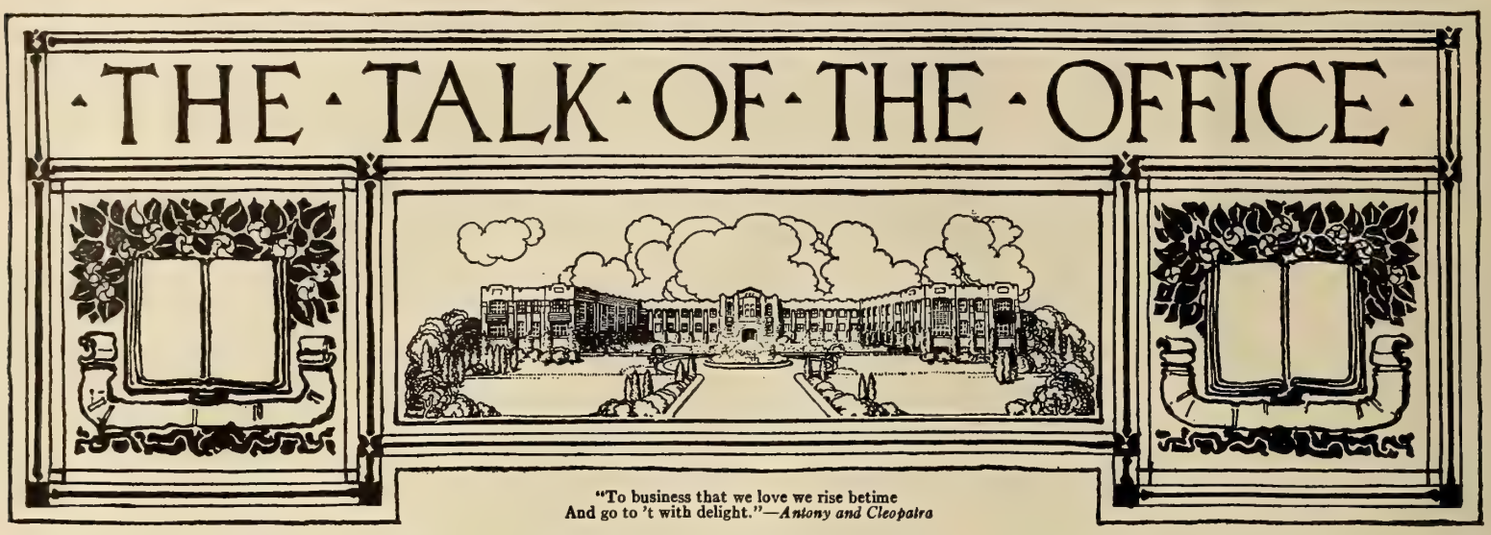

"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

DR. TRUDEAU AND R. L. S.

IN THESE days of hurry and rush and of whitehot history in the making there are perhaps fewer of the good old books of biography and autobiography than there were in a more leisurely period; but special interest seems to attach to two books of this nature in which we feel a certain degree of pride. One is the autobiography of Dr. Edward Livingston Trudeau, the founder of the Saranac Lake Sanatorium, and the other is "On the Trail of Stevenson," by Clayton Hamilton. The books seem to require mention in the same breath, because each gives an interesting and a vivid picture of the other; the Stevenson book of Dr. Trudeau, the autobiography of Dr. Trudeau of Stevenson.

When Stevenson went to Saranac Lake in 1887 he was attended by Dr. Trudeau, and in his rather complete account of this period of Stevenson's life Mr. Hamilton goes into detail. Mr. Hamilton visited Dr. Trudeau at Saranac and apparently was carried away by the courage, cheerfulness, and charm of the great fighter of tuberculosis. He describes one incident in particular as typical of Stevenson. R. L. S., it appears, visited Dr. Trudeau's laboratory and saw there the tuberculosis cultures being grown in glass jars. His comment, according to Mr. Hamilton, was characteristic. Mr. Hamilton says:

> Louis was merely disgusted and annoyed. "Trudeau," said he, "you are carrying a lantern at your belt, but the oil has a most objectionable smell."
>
> The doctor told me this with humor; but it did not seem to me so funny when I thought about it afterward. At present I remember an eager, active-minded man, sitting anchored in a lounging chair and muffled among furs; talking with that tense voice of the achieving dreamer; at home in life, though exiled from its laughing and delightful commonplaces; cheerful and alert, though slowly dying; young, clear-eyed, and still enthusiastic, although already ancient in endurance; lying invalided while his City of the Sick grows yearly to greater prominence among the pines; fighting with an easy smile the death that has so long besieged him, to the end that others after him, afflicted similarly, may not die. And the best of our tricky and trivial achievements in setting words together dwindle in my mind to indistinction beside the labors and the spirit of this man.

Dr. Trudeau describes the same incident, with a charming and self-effacing modesty, as follows—note the difference in the two versions of Stevenson's words:

> Mr. Stevenson and I had many interesting and at times heated discussions by the fireplace in the sitting room. It was really a great privilege to meet him in this informal way, and even if we didn't always agree, the impression of his striking personality, his keen insight into life, his wondrous idealism, his nimble intellect and his inimitable vocabulary in conversation have grown on me more and more as the years roll by. It is hardly to be wondered at that we did not agree on many topics, for our interests and our points of view on many subjects were utterly at variance. My life interests were bound up in the study of facts, and in the Laboratory I bowed daily to the majesty of fact, wherever it might lead. Mr. Stevenson's view was to ignore or avoid as much as possible unpleasant facts and live in a beautiful, strenuous and ideal world of fancy. He didn't care to go to the Sanatorium with me or see the Laboratory, because to him these were unpleasant things. He evidently felt this, for, after he had written "The Lantern Bearers," I got him one day into the Laboratory, from which he escaped at the first opportunity with the words, "Trudeau, your light may be very bright to you, but to me it smells of oil like the Devil!"

In another place Dr. Trudeau says:

> When he left Saranac Lake he sent me a beautiful set of his works which he had had bound with a special binding for me, and in each book he had written in his own hand a verse dedicating the volume to some member of my family and to me, and even to my dog, Nig.
>
> In "Dr. Jekyll and Mr. Hyde" he had written:
>
> Trudeau was all the winter at my side:
> I never spied the nose of Mr. Hyde.
>
> To Mrs. Trudeau he had dedicated "The Dynamiter" in these words:
>
> As both my wife and I composed the thing,
> Let's place it under Mrs. Trudeau's wing.
>
> To my daughter, "Virginibus Puerisque", in these words:
>
> I have no art to please a lady's mind,
> Here's the least acid spot,
> Miss Trudeau, of the lot.
> If you'd just try this volume, 'twould be kind!
>
> To Ned, "Treasure Island," in these words:
>
> I could not choose a patron for each one:
> But this, perhaps, is chiefly for your son.
>
> To the baby (Francis), "A Child's Garden of Verse," in these words:
>
> To win your lady (if, alas, it may be),
> Let's couple this one with the name of Baby!
>
> And to Nig, "Memories and Portraits," in these words:
>
> Greeting to all your household, small and big,
> In this one instance, not forgetting—Nig!
>
> This invaluable gift, alas, was destroyed when my house and laboratory were burned to the ground in 1893.

Dr. Trudeau's autobiography is just published and "On the Trail of Stevenson," was issued in October.

DR. BOOKER T. WASHINGTON

Another book of biography which is of timely interest is the life of Dr. Booker T. Washington, the Negro educator, to be published under the title of "Booker T. Washington, the Builder of a Civilization." This book is now in course of preparation by Lyman Beecher Stowe and Emmett J. Scott, the latter one of the members of the faculty at Tuskegee and for years a trusted lieutenant of Dr. Washington. Most of the material was gathered by Mr. Scott before Dr. Washington's death last fall and bore his full authorization.

A NEW KIND OF BOOK ON SOCIALISM

In "Socialism in America," John Macy, the well-known literary critic and energetic radical thinker, has given the world a new kind of book on socialism. In his foreword Mr. Macy explains that the book is not a "come-to-Socialism" tract, nor yet an attempt to define within certain limits this broad philosophy.

"Most of the arguments," says Mr. Macy, "are inter-Socialist, that is, they are on one side or another of questions on which Socialists disagree among themselves. The outside may step in, see what the row is about, and then step out again. I am a member of the Socialist Party and of the Industrial Workers of the World, but I have no official position in either. I express only my own opinions on opinions of others which happen to appeal to me."

In other words, the person who has been perplexed by the seeming discord and the inability to agree upon any one subject, among Socialists, has here a book which will show the point on which these Socialists split, and why.

Mr. Macy is particularly concerned with the different aspects of socialism and their relation one to another. To the student of the doctrine his clause by clause explanation of the Socialist Party platform will be stimulating and illuminating whether one agrees with it or not.

A KELLOGG SUPERB EVERBEARING PLANT GROWN THE KELLOGG WAY. Photographed Sept. 15, 1915.

The Kellogg Way

Fresh Strawberries from June to November

With 14,000 hills loaded with big, fancy berries, like the hill shown here, and each hill fruiting continuously from June until November, you can understand why so many of those who grow Kellogg Pedigree Plants the Kellogg Way make $1,000 to $1,200 per acre each year.

KELLOGG PEDIGREE PLANTS, THE KELLOGG WAY, KELLOGG FREE SERVICE—THAT'S ALL

"Great Crops of Strawberries and How to Grow Them"

gives you the complete Kellogg combination. Send for your copy RIGHT NOW. The book is FREE.

R. M. KELLOGG COMPANY Box 690 Three Rivers, Michigan

KELLOGG SUPERB STRAWBERRIES (Reduced to one-half size) Picked from Kellogg Pedigree Plants, October 19, 1915.

Pick Fresh Strawberries Till Snow Falls!

Think of the surprise of your friends when you serve them fresh, home-grown strawberries as late as October and November. Just a small bed of Progressive Fall-bearing Strawberry Plants will supply your table till snow flies.

The Progressive Strawberry

The best of all late fall-bearing plants. It beds up freely like the spring-fruiting varieties and bears berries of delicious quality, highly colored and red to the core. Set the plants in the spring and they bear the following fall.

The Chesapeake Strawberry

One of the most popular varieties of late spring-bearing plants. The Chesapeake produces large and uniform berries on firm stems which hold the fruit up off the ground. The berries ripen at about the same time as the old well-known Gandy variety.

Fall-bearing Strawberry Seeds

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THE GARDEN MAGAZINE

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(Note the long stems)

The color of this beautiful, new dahlia is a very rich, velvety, light, maroon. *The form* of the flower is of a true cactus type and of an exceedingly large size, often measuring 8½ inches in diameter. The flowers are borne on long, stiff stems, some measuring as long as 30 inches. Then the great length of stalks between the joints render it a most unusual dahlia for decorations in large vases. This new dahlia has won prizes wherever exhibited and also won the admiration of all who have seen it at the many places where the flower has been shown. **One grower reports that he had one flower of this dahlia that measured 11 inches in diameter.**

An idea of the beautiful shade of the flower can only be gained by seeing it. As the originator of this monster dahlia I am proud to give it my own name, with the assurance that it will win for itself a place at the head of the cactus dahlia family. It is an exceedingly stout, high growing plant and should have an abundance of fertilizer, and an immense quantity of water, which will amply repay one in gorgeous, beautiful flowers, a lack of which will sometimes cause an inferior flower with open center.

The New York daily papers in commenting on this dahlia as shown at the Dahlia Show of the American Dahlia Society in New York City, said: "The new hybrid type of Cactus Dahlia was well exemplified by Mr. Stillman's velvety crimson novelty named after himself, Geo. L. Stillman. It is an immense flower, very full and rich. It might well be taken as the standard of 'American Cactus Dahlias'."

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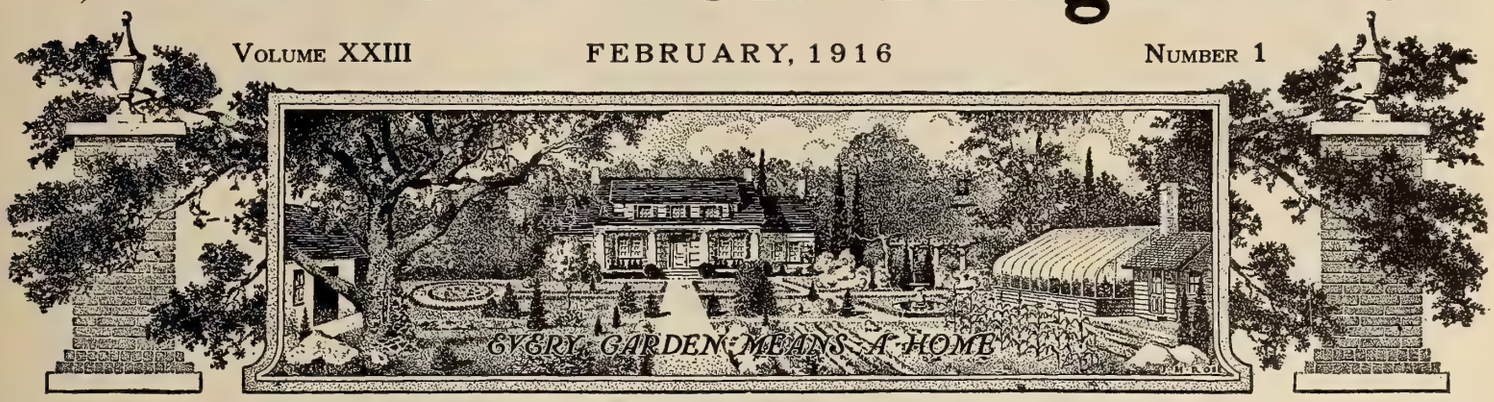
The Garden Magazine

VOLUME XXIII FEBRUARY, 1916 NUMBER 1



WATER is perhaps the most important element for plant or animal life; with light and heat from the sun and food from the air and earth through the medium of water is the work of plant growth carried on. Under natural conditions we can in our garden operations make little change in the heat and light of the sun, or the food and water in the soil and air; plants adapt themselves to Nature's environment. Under the intensive cultivation of plants, though more when under glass than when in the open air, we can and do profoundly modify Nature's conditions, and greatly accelerate or retard plant growth. But when we are growing plants in a natural way for their beauty we should expect in general not to be required to give their physical wants continuous attention. Food and water we must give them, for as soon as we take them into cultivation we are taking them partly out of the control of Nature, but this special feeding can easily be overdone.

WE HAVE enough trials, as weeds, bugs, and disease, without adding frequent watering to the list of things that must be watched for, if we can avoid it. A border that needs constant watering is scarcely worth while. If your little patch of vegetation begins to wither in early summer the cause is easily located—the plants do not fit the soil, or the soil the plants, which is the same thing. The fault is the gardener's, and not to be laid against Nature because she does not rain upon it at once. So we seize the hose or watering-can, sprinkle for five seconds, and exclaim mentally, "Now grow, confound you." To-morrow we repeat the operation, then forget it for a week, the plants fail, and we tell our friends that our soil is too dry to raise anything, while thrifty Docks and "Pusley" fill our beds. You never saw Nature out with a watering-can sprinkling a 10 by 20 piece of ground; her work is on a larger scale, and she waters your little plots with her larger ones; her gardens rarely look dry, but flourish through the heats of summer.

THE RAIN falls on the just and the unjust, as much on the gardens of the unjust gardener as upon those of the just, yet the unjust gardener blames the weather and not himself. In New England we do not have as heavy rainfall as in Oregon, and yet the grasses and trees survive and flourish; so should the plants of the gardener who plants with wisdom. The arid angle of the front steps will not raise Cardinal Flower nor Japanese Iris—better try Sedums. Three inches of soil and a subsoil of gravel or cinders will scarcely support a thrifty crop of lawn, even if you keep the sprinkler going eternally. With the first preparation of the ground we plan for future droughts by deep digging (at least two feet) and unless the soil is naturally retentive of moisture we add a great deal of decayed vegetable matter (old manure, rotted leaves, sod, etc.) to act as a sponge, and work it in deeply. For here we have the secret told by the grasses and trees. "In August we do not depend on water from overhead (rain) but from the everlasting springs below our roots which forever are sending up moisture to the surface. By shading our soil surface with our green tops or blanket of dried leaves we keep the sun from sucking this up, and save it for ourselves." Nature works simply and effectively, and the everlasting springs send up all summer by capillary action just as much moisture per square foot in your Pansy bed as in your neighbor's potato field, if the soil is of similar nature. You let the sun have your share—why? Anything to stop this surface evaporation is all that is necessary.

THE farmer uses his hoe and cultivator; he may think that he is killing the weeds, but he is doing more than that, for he is also making a dry-dust mulch about an inch deep, through which but little moisture can pass. Your annuals should also be hoed, just as vegetables, and never let the earth get a hard dry crust, for the sun is looking for just such spots for a drink. Water with your hoe and rake, and throw the can on the dump. On the other hand, where specially succulent vegetables are wanted—and these, bear in mind, are highly artificial productions—it is quite proper to resort to quite elaborate irrigation methods.

In the hardy border and among the shrubs it is not well to hoe every week through the summer, unless you like a few plants set in bare stretches of soil. Thorough deep trenching of the soil before planting helps the roots to strike deeply, and for the rest we have other mulches. Shrubs or herbs that entirely shade the ground will stand longer droughts than will those planted where there are open spaces; plant to have all the surface shaded, just as Nature does in the meadows. Newly set trees and shrubs should have a mulch of leaves, hay, or even boards or burlap the first summer, as the roots have not yet struck deeply. You will find the under side of this mulch damp even in the longest droughts. This is not necessary nor feasible in the border, for properly planted as to distances in well-prepared soil with plants suitable for very sunny situations, there will be no need for the ministrations of the hose under ordinary conditions, and never before July.

BUT to keep a luxuriant growth of many border herbs through the summer, particularly in August, and near large shrubs or the house foundations, water is sometimes necessary. When the herbage wilts down in the hot sun of midday, and scarcely recovers before the next sun, then apply water, but do not sprinkle. Let the water run all night, or until the ground is saturated for several feet down, for the under-supply is insufficient for the rampant vegetation of your bed. You see that Nature was planning something simpler for that spot, so you must help her out. Put on so much water that no more will be needed for at least a week, and the next day carefully loosen the surface soil in any exposed places. As a rule, water late in the afternoon, at night, or when cloudy, to cheat the sun. Do not use cold water from pipes far underground; try some on yourself and see how the plants will like it, for they are even more sensitive to cold than you are when they are growing vigorously. If you have not surface water from pond or brook, see that the water you use has first been exposed in an open tank to the sun for half a day; you have no idea how much difference it makes to the plants. As a rule, don't water much after the first of September, except in the case of very late bloomers that you wish to keep luxuriant; the soft weak growth made in late autumn always winterkill. Nature ripens things off in September by drying before the time of frost, and thus gets ready for winter.

THIS craving for surface drink is a bad habit in plants and almost impossible to cure once you get them the habit. They soon come to depend upon you by keeping their feeding roots close to the surface. So if you begin to favor them early in the spring, keep it up regularly and thoroughly all summer. Think of the work ahead of you and be slow in beginning. Just as the modern physician prevents disease rather than cures it, so the careful gardener will do all in his power to keep his dependent charges from a condition requiring the hose treatment. They must have water to be healthy and luxuriant as we wish them to be, but the rains from above and the great storehouse below can be made to serve for most places in which a garden would be built.

Heavy watering in dry weather is decidedly injurious to any crop, as many a fruit-grower and gardener has discovered. Very often results are better without it, as increased leaf and stem growth result, rather than better flowers and fruit. We are not wiser than Nature yet, and have much to learn about irrigation.

Nature has in store plants for every conceivable situation, from the arid side of a sun-baked rock to the shady banks of the forest pool. This thought will be developed in a series of articles by Mr. Hamblin, to begin next month. We have little power to enforce our puny wills against the ever-active forces of Nature. If we wish this plant here and that there, consulting our own desires only, then we should be content, if the situation is unsuited to Nature, with the sickly drooping growths we obtain.

Plants have varied ways of preparing for a dry season. Some bloom and ripen early, and escape it altogether; others store food and moisture in bulbs or tubers, or in thickened leaf and stem; while some send their roots down deeply for moisture. You never saw the wild Lupine wilt, no matter how sandy the soil in which it grows; neither can you by deep digging find the whole of its root. These four kinds of plants which expect a dry season and are prepared for it are the proper herbs for sun-baked spots; but if we wish to grow well the shallow-rooted habitants of shady wood or moist meadow in sunny, well-drained situations near our homes we are working at cross purposes with Nature. Expecting then no help from her, we take the responsibility upon ourselves. And after all is not the essence of really gardening the finding out of the thing that will flourish abundantly with a minimum of care under the conditions at hand?

THOSE gentlemen who are engaged in investigations and experiments are forever telling us something really new. It is undoubtedly a fashion of so many of the purely practical people to deride—facetiously it may be—the efforts of these laboratory folks, quite oblivious of the fact that they are to-day, and every day, actually basing many of their "practical" acts on the earlier demonstrations of these same men. Gardeners in America have indeed much cause to be thankful for the things that have been dug out by the microscope and test tube. Many of the discoveries are merely passed by as "interesting" because their direct application to the practical economy of the garden is not immediately apparent. Later on the correlated facts are gathered together and a new course of practice evolves with more satisfactory results to the grower. Yet but little of the actual credit due is accorded to those whose proven work, looking behind the scenes as it were, has been the means of causing the change.

IT IS especially in the field of diseases (whether by fungus, bacteria, or insect) that the work of the investigator is most observed. Spraying and fumigating have become so general nowadays that the idea of good gardening without waging an intelligent war on the pests of disease is hardly conceivable. And yet it is but a very few years ago that the man who seriously sprayed was regarded somewhat suspiciously by his friends. To-day it is the man who doesn't spray who is likely to be called to account; and not only because of his own mental makeup but also because he is looked upon as a stumbling block to the march of community interest. More and more in the country as in the town is a man coming to realize that he does not, can not, live for himself alone, nor by himself. A man's every action has its reaction on his neighbors. And gardening teaches this lesson in a very decided way. There are thousands more gardeners now than there were ten years ago. Whole communities have awakened to the garden stimulus and are making better homes and better citizens. Gardens make for neighborlike interest in what is going on next door. Sociability grows out of the garden sympathy and soon a local pride is developed and fostered.

ONE of the most recent announcements of progress with plant disease concerns the dreaded wilt of cucumbers—a disease that baffles all attempts at remedy, once it has shown itself in the affected plant. There was only one other real bother of cucumbers—the striped cucumber beetle—and as it now appears the beetle is responsible for the whole thing. Destroy the beetles, or prevent them from attacking the plants and then there will be no wilt. The wilt disease is bacterial, but according to the report in the *Journal of Agricultural Research* it cannot enter the plant except through the bite of the beetle. That hibernating beetles can carry the wilt germ through the winter and directly affect the young plants the following season seems to have been clearly proven.

THE experiments established absolutely that the beetle carries wilt during the growing season from infested to other plants. In all cages from which beetles were excluded the plants remained free from the disease in both fields, although wilt-infested plants were growing all around these cages. On the other hand, wilt was found in the cages only when the striped cucumber beetle had gained access to the plants. In one cage, supposed to be free from beetles, wilt was observed just starting on the tip leaf of one plant at a point gnawed by a beetle. Careful search of this cage disclosed a striped beetle. After the beetle had been removed and the one wilted plant had been taken out, no further signs of the disease appeared in that cage.

All hibernating beetles do not necessarily carry the disease over the winter but only some of those which presumably have fed during the previous season upon wilted plants infect the next year's planting.

THUS is cleared up one more of the mysterious diseases that trouble our garden crops. But there still remain quite a number of others that will surely excite the attention of our readers this coming season. Every season, as long back as our memory runs, disappointed enthusiasts have written letters asking for an explanation of certain ever-present troubles, as for example, the "larkspur blacks," that strange "blight of the annual aster," to name the most common. Unfortunately, neither the cause nor the remedy have been discovered. Yet we do not despair. Fire blight of pears, wilt of peony, and such like, now well understood, were equal mysteries a few years ago. Little by little the sum of our knowledge increases and the gardener to-day is far better equipped to fight the battle for healthy plants than was his father. The world moves!

WE RETURN our thanks to those readers (both old and new) who have the goodness to write letters to us about the contents of the magazine. Such letters are always welcome. Perhaps the average reader does not realize how much he can accomplish in helping to mould future issues of the magazine by an occasional word of suggestion or encouragement. Won't you resolve now to write at least one letter this year. If the trend of things seems to be going awry as you see it; if you are not finding in THE GARDEN MAGAZINE just what you feel you ought to get in it, *write to us*. Equally when you find the kind of article that you *do* like, *write to us*, so that we may be encouraged to present other articles of that general type. The magazine is, indeed, made for its readers, and they can have what the majority seem to want. And, besides, it is gratifying to learn of a successful effort. It is like the applause that is accorded to the actor—by that token he knows that he has reached his audience, and his work improves. Won't you let the Editor know when, and how, he reaches you?

Early Spring-Flowering Trees and Shrubs*

By Ernest H. Wilson, Arnold Arboretum

[EDITOR'S NOTE.—*This is the ninth of Mr. Wilson's special articles and has a most timely interest, calling attention to the earliest beauties for the lawn and shrubbery. All these earliest flowering trees and shrubs may be planted this Spring, being moved even when they are in full flower. There will be abundance of time to get the things spoken of and to get them set out in our gardens this season. Most of those named can be found in any general nursery, and the others are also procurable with a little searching. It is interesting to observe that Mr. Wilson selects so many subjects that are already well known favorites.*]

IF THERE be one season of the year wherein outdoor flowers are more keenly appreciated than another it is without doubt that of Spring. All of us welcome the season when Nature puts on new apparel and appears in all the freshness of vigorous youth. And rightly so, for fallen indeed is the state of those in whom the joyousness of Spring finds no answering echo. Garden lovers in particular greet the Springtime with open hands and gladsome hearts, for then appear in beauteous blossom a hundred and one plant treasures. Who among us does not welcome that sweetly pretty harbinger of Spring the Winter Aconite (*Eranthis hyemalis*) with its small, clear yellow flowers? And with what pleasant thrill we note the first expanding blossoms of the Snowdrop! Possessors of gardens differ widely in their tastes and affections for different classes of plants but all agree in the desire for subjects which produce flowers early in the Spring. Of material both herbaceous and woody there is ample and in every garden there is room for improvement. The central truth which all should realize is that in gardens it is in variety not in uniformity that beauty must be sought.

The Mezereon (*Daphne mezereum*), a woodland shrub that will thrive in the open border, has fragrant rose colored flowers in earliest spring

In the woods and by the roadside and on the margins of swamps a number of native woody plants put forth their blossoms very early in the Spring and escape the notice of the multitude who pass them by. The Silver Maple (*Acer saccharinum*) in New England is the first of native trees to open its flowers, which are heavily clustered on the naked twigs but are less conspicuous than those of the Red Maple (*A. rubrum*), which open soon afterward and are red or orange-red and sweetly fragrant.

The American Elm (*Ulmus americana*) is one of the most beautiful of all trees, with its massive trunk dividing a few feet from the ground into several or many stout ascending stems, which branch to form a rounded or flattened wide-spreading crown in which the lesser branches are more or less pendent. In this tree, too, the flowers are clustered on the naked twigs and consist of little more than pink anthers suspended on elongating thread-like filaments. In the Hazelnut (Corylus) and in the Alder (Alnus), the female flowers are insignificant but the male flowers are borne on long, cylindrical catkins which are clustered together near the ends of the twigs, and examination will show that the stamens are brightly colored. The Pussy Willow (Salix) are the most noticeable and most appreciated of plants which in early Spring produce their flowers in catkins. The Poplars (Populus) also bear their blossoms in a manner similar to the Willows and in certain species the stamens are handsomely colored.

THE WITCH HAZELS

But before the earliest Silver Maple or Pussy Willow shows any signs of welcoming Spring by putting forth blossoms the Witch Hazels (Hamamelis) have expanded their flowers and most of the petals have fallen. This small group of shrubs deserves to be much more widely known, for it possesses attractions that are absolutely unique among hardy plants. The native *H. virginiana*, so common in woodland and copse, is the last of shrubs to blossom in the autumn, when its yellow, star-shaped flowers are hidden midst a mass of yellow-tinted foliage. As the leaves fall the flowers are seen to better advantage, and individual bushes may be found in December with a few odd flowers bravely facing the first strong blasts of winter.

The other three species open their flowers in

The oldest and best known of the Golden Bells is *Forsythia suspensa*, having abundant clear yellow flowers in March

There are several Bush Honeysuckles having fragrant flowers and showy fruits. *Lonicera Standishii* here shown has pale yellowish white flowers

* Copyright, 1916, by Doubleday, Page & Co.

The Chimonanthus (*Merotia praecox*) has extremely fragrant, waxlike, palest yellow and wine colored flowers in late winter. Good for Southern gardens.

January and February, when the twigs are bare and when snow carpets the ground and all around is dreary and uninviting. The best known of these is the Japanese Witch Hazel (*H. japonica*), so abundant in the woods of the Nikko region of Japan and elsewhere in that land. It is a large bush twelve to fifteen feet high, with many stiff, ascending-spreading branches and twiggy shoots and smooth leaves like those of the native *H. virginiana*. The star-shaped flowers, each with five long, strap-like, canary yellow petals, surrounded by a calyx which is wine-colored on the inside, are fragrant and thickly stud the shoots and branches. The variety *arborea* is distinguished by its more golden-yellow petals and more richly colored calyx and its flowers open a little in advance of those of the type.

The finest of the genus is the Chinese *H. mollis*, which is similar in habit to the Japanese kind but has larger flowers which open earlier and larger leaves which are softly hairy on the underside. This shrub is native of the mountains of central China and, although it is now some thirty-six years since it was introduced to cultivation by the late Charles Maries, it is little known and far too rarely seen in gardens. A few years ago a Witch Hazel, which forms thickets in the gravelly beds and on the margins of streams in southern Missouri, Arkansas and Louisiana, was recognized as a new species and named *H. vernalis*. Some small plants were obtained and these opened their flowers for the first time under cultivation in the Arnold Arboretum on January 15, 1913, a little before those of its Asiatic relatives. The flowers are fragrant and, though smaller, are more freely produced than in any other species. The inside of the calyx is wine-colored as in the Asiatic species; the narrow petals are erect-spreading, somewhat undulate with the apex inflexed, usually yellow, often golden and in some flowers stained with wine color. The leaves resemble those of the common American Witch Hazel but are more hairy and are often somewhat glaucescent on the under surface. Its habit is stoloniferous (i. e. it suckers freely) and in this respect it differs from all other species. The plants when they first flowered were not more than two and a half feet high; but they have grown much since, though they have not attained their maximum height, which is said to be six feet.

These Witch Hazels are the first of all woody plants to blossom; they are perfectly hardy, and every season, no matter how inclement the weather, put forth a wealth of flowers from the twenties of January to early March. Not only are they excellent subjects for planting in parks and gardens generally, but they are particularly valuable for town gardens. City smoke does not affect them injuriously; they will withstand considerable neglect and abuse and may be kept in bounds by pruning. It is passing strange that plants so useful and so very desirable for enlivening gardens with flowers during dull winter months should have received so scant recognition.

SOME SWEETLY FRAGRANT SHRUBS

The Spicebush (*Benzoin aestivale*) and Leatherwood (*Dirca palustris*), two common inhabitants of the thickets and swampy woods of New England and elsewhere on the Atlantic seaboard, are among the first of native shrubs to open blossoms. The Spicebush is a tall shrub with moderately stout stems and twiggy branches and bears innumerable clusters of small yellow flowers. The Leatherwood is a compact bush three to five feet high, and much more in diameter, and has pale yellow, bell-shaped flowers.

A number of our earliest flowering shrubs hail from Europe and, with conspicuous flowers, the first to open are the Heath (*Erica carnea*) and the Mezereon (*Daphne mezereum*). The former opens its little pink urns in quantity even before all the snow has melted from around it. This, and its white form (*alba*), are compact little plants six inches to a foot tall and are absolutely hardy and easily grown, provided they be planted in positions fully exposed to the sun and air. The Mezereon is a woodland shrub but when once established thrives in the open border. It is a sturdy bush seldom exceeding four feet in height with erect branches, and in early spring its twigs, throughout their entire length, are covered with rose-colored, or in case of the variety *alba* with white, fragrant flowers.

Very beautiful too is the Garland-flower (*Daphne cneorum*), a native of the Caucasus. This is a low-growing tufted plant not exceeding a foot in height, but densely branched and with grey-green leaves and terminal rounded clusters of rose-pink, deliciously scented flowers. The charming plant blossoms most profusely in the early Spring, and through the summer and autumn a few flowers continue to open. Both for the rockery and open border this is a delightful subject.

The Apricot is a handsome small tree with clear pink flowers in profusion. It will grow and flower in New England

For the most ornamental of early spring-flowering shrubs and trees, the gardens of eastern North America depend, not upon native nor

Magnolia denudata or *conspicua* growing on the old Prince Estate at Flushing, N. Y., whence many present favorites were introduced to cultivation. The most showy large blooms of any early spring flowering tree

The Garland Flower (*Daphne cneorum*), a low-growing tufted evergreen that blooms intermittently all the year through. Flowers rosy, fragrant

upon European plants, but upon those of China and Japan. These lands too have their catkin-bearing Willows, Poplars, Alders and Hazelnuts, and their Elms, Maples and other plants with flowers clustered on naked twigs. They have, in addition, a variety of shrubs and trees which have large and brightly colored flowers that are conspicuous from afar, and it is these that are found most commonly in our gardens and it is these that we all admire so much.

TREES WITH THE LARGEST FLOWERS

Of all hardy trees Magnolias have the largest flowers, and no trees are more beautiful and few so amenable to cultivation. Now, Magnolias are confined to this country east of the Mississippi Valley, and to eastern Asia and the Himalaya. All the American species produce their flowers at the same time as the leaves or after the latter are fully unfolded. A similar group grows in the forests of China and Japan; but, in addition, there are species native of those lands which bear flowers abundantly on the naked shoots. It is these that give such a gorgeous display of blossoms in early Spring and are everywhere so highly esteemed in gardens and parks. Centuries before their introduction to western lands these plants were favorites in the gardens of China and Japan, where their flowers are regarded as a symbol of candor and beauty.

The Yulan (commonly known as *Magnolia conspicua*, but correctly as *M. denudata*) is authentically known to have been cultivated in China since about A. D. 618. The white-flowered form of the Yulan was introduced to English gardens in 1779, and is now grown almost everywhere in the Occident. It grows wild in moist woods in the central parts of China, but this fact has only recently been made known. This form, however, is rare in a wild state and that most usually met has rosy or reddish-pink flowers. This variety has likewise been long cultivated in China and also in Japan, where it is known as Sarasa-renge and in Japanese nursery catalogues as *M. obovata discolor;* correctly, it should be *M. denudata* var. *purpurascens*. In 1900, I introduced this

Who does not look for this early herald of spring, the Pussy Willow? The yellow tipped stamens are quite showy

variety by means of seeds collected from wild trees in central China but as yet the plants have not borne flowers. However, I strongly suspect that it has been cultivated in western gardens for a much longer period, under some other name, and its identity obscured.

Both the white and colored varieties of the Yulan make trees fifty feet tall, with a trunk eight feet in girth, and have ascending and spreading branches. Such trees I have seen in the forests of central China laden with thousands of flowers, and the spectacle they presented will never be forgotten. In western gardens examples of the white variety twenty to twenty-five feet tall are known, and fine specimens are common in the gardens of eastern North America where the Yulan is a very popular tree.

The second species to be introduced to our gardens was the Purple-flowered Magnolia (usually known as *M. obovata*, *M. purpurea* or *M. discolor*, but correctly as *M. liliflora*), which reached England in 1790. This, like the Yulan, has long been cultivated in China and Japan, but it has not yet been authoritatively reported in a wild state. It is a much less hardy plant than the Yulan and appears to be always a shrub. In this country it is well known and thrives in gardens south of Philadelphia. The flowers are dark wine-red and very handsome. Under cultivation in Europe several hybrids between *M. denudata* and *M. liliflora* have been raised. The oldest and best known of these hybrids is *Soulangeana*, with flowers suffused with rose. This is a hardy and vigorous growing tree and some very fine examples are known in this country. Other of these hybrids are *rustica rubra*, with deep rose colored flowers; and *Lennei*, which originated in Italy, has rich crimson-purple flowers, and blossoms late. Both are strong growing, free-flowering plants.

In 1862, Dr. G. R. Hall, on his return from Japan, brought with him and handed over to Mr. S. B. Parsons, at Flushing, L. I., a collection of plants that have proved of immense value to gardens. Among the many good things was a Magnolia, which Parsons afterward distributed as *M. Halleana* to commemorate the name of its introducer. Unfortunately, however, it had earlier received the name of *stellata*, and that had to take precedence. This *M. stellata* is the first of all Magnolias to open its blossoms and is always a broad and shapely shrub growing eight to twelve or fifteen feet high and more in diameter; the star-shaped, snow-white flowers are smaller than those of other species but are borne in such profusion as to cover the bush with white. This is one of the most beautiful and most satisfactory of all spring-flowering shrubs and is extremely hardy. There is also a variety (*rosea*), with delicate pink flowers, which makes a lovely companion to the type. A fourth species (*M. kobus*) also hails from Japan, where it is common in the forests on the mountains throughout the greater part of that land. The southern and

The earliest flowering of all the Magnolias is Hall's (*M. stellata*). It is free flowering and quite hardy. One of the oldest and best of Asiatic introductions to our gardens

typical form is a large bush or low tree, but the northern form (var. *borealis*) is a shapely tree sixty to seventy-five feet tall with a smooth trunk six feet in girth. This variety, *borealis*, was introduced in 1876, by Professor W. S. Clark and trees raised from the original seeds are now thirty feet tall and have broad pyramidate crowns. It flowered for the first time in cultivation in April, 1899, in the garden of Professor C. S. Sargent, Brookline, Mass., but the blossoms were sparse. In subsequent years it has flowered in many gardens and much more profusely, and it is the most free-growing of all members of its group. The pure white cup-shaped blooms are smaller than those of the Yulan. There are other species of Magnolia which flower on the naked twigs, but of these two only are in cultivation and only one, the Himalayan *M. Campbellii*, has blossomed. This has rose-colored flowers and is one of the most gorgeous of all flowering trees but, unfortunately, it is less hardy than any other member of its group.

Japanese Witch Hazel (*Hamamelis japonica*) opens its canary yellow flowers in January

Common Witch Hazel (*H. virginiana*) opens its yellow flowers as the leaves drop in December

New native Witch Hazel (*H. vernalis*) opens its flowers in spring. It has hairy leaves

Magnolias grow naturally in moist, rich woods and, although they will withstand considerable hardship and abuse, the best results are obtained when they are protected from strong winds and are planted in deep soil rich in humus. In northern gardens the best time to transplant Magnolias is late in the spring. They may also be moved successfully about the end of August or beginning of September, but at either season they must not be allowed to suffer from lack of water and it is advisable to mulch them with well-decayed manure.

FOR SOUTHERN GARDENS

A favorite shrub in the gardens of China and Japan is the La-mei-hwa, widely known as *Chimonanthus fragrans* but correctly as *Meratia praecox*. This plant has fragrant, pale yellow, saucer-shaped flowers stained with wine-color at the base, and these are freely borne on the naked shoots. It is not hardy in New England, but south of Washington, D. C., it thrives. Like many other plants cultivated in Chinese and Japanese gardens, this shrub is native of central China where it grows naturally on cliffs and in rocky places.

For gardens south of Philadelphia the rambling *Jasminum nudiflorum*, with clear yellow flowers on naked shoots, is a lovely old plant. It is a native of northern China where it is also frequently cultivated, and is one of the plants we owe to the labors of Robert Fortune, who sent it to the Royal Horticultural Society in 1844.

CHERRIES, PEACHES, ETC.

In China and Japan, except the colder parts, the first flowers to open on deciduous trees are those of the Ume (*Prunus mume*), generally known as the Japanese Apricot, and those familiar with the porcelains of the Far East will appreciate it as the Plumblossom so often employed in design. This plant is wild in central and western China, but it has been cultivated in all but the colder parts of that land from time immemorial and was from China introduced to Japan by Buddhist priests more than one thousand years ago.

In Tokyo and many other places in Japan there are famous "Plum Gardens" which are a source of great attraction when the trees are in blossom. At the village of Tsuki-gase, some twenty-five miles from the old eighth century capital of Nara, there is a line of Ume trees for upward of two miles alongside a small stream. The delicately fragrant flowers are white, pink or even deep rose, and are either single or double; the shoots are smooth and green and the leaves roundish and light green in color. Normally it is a low bushy tree some twelve to fifteen feet tall, with a thin trunk and spreading branches; but under cultivation, forms have originated in which the branches are pendent or quite erect (fastigiate).

In both China and Japan it is much grown in pots as a dwarfed bush and in this condition flowers profusely. Cut branches with flowers are abundantly used for house decoration—so much so, in fact, that it is safe to say that in season where it is grown in China and Japan no temple, shrine or dwelling, be it castle, palace or peasant's hut, is without its sprig of Ume. Unfortunately, this plant is not hardy in the colder parts of North America, but south of Philadelphia it is not uncommon in gardens. Yet it deserves to be more widely known, and as a forcing shrub merits the attention of our florists.

The common Peach (*Prunus Persica*) is native of central China and as bearing the finest of all the stone fruits needs no mention here. But cultivated in the gardens of China and Japan are a number of varieties with large and double flowers, in white, pink, rose-red, and bizarre and strikingly handsome. From time to time these have been introduced to our gardens, yet one rarely meets with them, beautiful though they are. The explanation is that, like the parent stock, they are short-lived trees; but they are readily renewed by budding or grafting and our nurserymen ought to be able to keep our gardens supplied.

In addition to the common Peach two other species grow wild in China. One of these (*P. Davidiana*) is confined to the northern parts of that country and in the Arnold Arboretum it is the first of its class to blossom. Often the flowers get damaged by frosts in the changeable climate of New England. The tree is of slender growth with thin ascending-spreading branches, and there are two forms, one with white and another with pink blossoms. The other species (*P. mira*) is a new discovery which I made in 1910, in the Chino-Thibetan borderland. The flowers are unknown to me but probably resemble those of the common Peach. This new species is remarkable in having a very small, flattened-oval and perfectly smooth stone; its value, if any, as a new fruit tree has yet to be made known, but for the hybridist it certainly has attractions.

The common Apricot (*Prunus Armeniaca*), its specific name notwithstanding, is also native of northern China and, like its allies, is not only a valuable fruit tree but is likewise a handsome and ornamental flowering plant. This, too, has been long cultivated in the Far East, and in Japan varieties differing in habit and color of flowers, have originated. The type and its varieties are all very hardy and in New England gardens they are often cultivated under the erroneous name of *P. mume*.

In Japan this Apricot is known as Ansu and the fruit is pickled and is served as an appetiser; but under the same name the Japanese cultivate another species (*P. ansu*), which is distinguished by the blade of the leaf tapering to a narrow wedge at the base. This species is native of Korea and has ascending-spreading branches and rigid shoots. In Japan forms with single and double white and pink flowers are grown.

In Mandshuria a third species of Apricot (*P. mandschurica*) grows wild. This tree is distinct, with its light gray rather scaly bark, wide-spreading crown and spiny inner branches. The flowers are large, white or nearly so.

Of Cherries proper I hope to write next month, but of several cognate plants it is convenient to speak here. All are twiggy bushes of rather low stature, are natives of China, and are among the earliest of all shrubs to blossom. Two of these (*Prunus japonica* and *P. glandulosa*) are very doubtfully distinct as species, but the leaves are much broader in *P. japonica*, and rounded and somewhat heart-shaped at the base, whereas in *P. glandulosa* they are narrowed at the base. Both are twiggy shrubs three to five feet high, and there are forms with white, pink and single or double flowers. They are old inhabitants of our gardens and have long been cultivated in Japan but are not native of that country. In northern and central China they are common wild plants, and so, too, is *P. tomentosa*, also commonly cultivated in Japan but not indigenous there. This, likewise, is a fairly old denizen of western gardens. It is a spreading, extremely hardy shrub of moderate height and has red flower-stalks and calyx and pure white petals which are pink in bud. The short-stalked, Cherry-like fruit is scarlet, ripens in June, and is very palatable.

The last of the Prunus I shall mention and the most beautiful of the four is *P. triloba*, also a native of northern China. The double form (*plena*) is commonly cultivated in Peking gardens and is a general favorite in western gardens to which it was introduced in 1857. The flowers of this form are large, pink and very freely produced on the naked twigs. More beautiful, however, is the type with its wealth of purest pink, single flowers. This wild form was sent from Peking to the Arnold Arboretum by Dr. Bretschneider in 1882, but is much too rarely seen in gardens.

THE SHOWY GOLDEN BELLS

Among spring-flowering shrubs yellow is a common color but in none is it purer or more vivid than in the Chinese Forsythias or Golden Bells. These lovely shrubs are universal favorites in northern lands and well do they deserve the honor. Of the two species (*F. suspensa* and *F. viridissima*), the oldest and best known in gardens is *F. suspensa*, with its abundant clear yellow bells; but better than either is the hybrid between them (*F. intermedia*), which has larger and richer colored flowers. There are several other hybrids and forms, all of them valuable garden plants. These Forsythias are all strong growing shrubs, with arching pendent branches which overlap one another and form an impenetrable tangled mass. They are sun and loam loving plants and are seen to best advantage when planted where they have lots of room, and preferably on a slope, where they may develop unmolested. On such a slope in the Arnold Arboretum there is a tangle of Forsythias some seventy-five feet long and as much through and, as a feast of color and beauty in Spring, is worth coming a long, long way to view. Any pruning considered necessary should be done immediately the flowers have fallen and, incidentally, this

is true for all spring and summer flowering deciduous trees and shrubs.

A few years ago, in 1897, to be precise, a third species of Forsythia was discovered in Albania and was named *F. europaea.* This plant was introduced in Kew Gardens in 1899, and bids fair to grow much taller than its Chinese relatives and their progeny. It is upright in habit and in consequence very distinct in appearance. The flowers are pale canary yellow and the plant is a very interesting addition to the list of spring-flowering shrubs; but those who have only room in their gardens for one Forsythia and want the best one available should plant the hybrid *F. intermedia.*

BUSH HONEYSUCKLES

Among the Bush Honeysuckles (Lonicera), whose all-round value for our gardens has been repeatedly emphasized in these articles, there are species such as *fragrantissima* and *Standishii* which open their blossoms at the first breath of Spring. Both are compact shrubs growing four to eight feet tall and more in diameter, and have pale yellowish-white sweetly fragrant flowers which are followed by scarlet fruits.

Rhododendrons, including Azaleas, will be dealt with in a subsequent article, but it is permissible to mention here *R. mucronulatum* and *R. dahuricum.* These are deciduous shrubs growing four to eight feet high and are the earliest of their class to blossom. The flowers are pink or rose in the first-named, and rose-purple in *R. dahuricum.* They are natives of cold regions of Mandshuria and Korea, and in New England the flowers are often nipped by late frosts. Both are sparsely branching, and to obtain the best effects they should be massed together thickly in a situation exposed to the air but protected from cutting winds and the early morning sun.

Getting an Early Start With Annuals—By F. Spring, Massachusetts

SOWING SEEDS IN THE HOUSE, AND MAKING THE MOST OF ONE'S OPPORTUNITIES WITHOUT FRAME OR GREENHOUSE—HANDLING THE YOUNG SEEDLINGS AND TRANSPLANTING OUTDOORS

FOR our present purposes we regard, as an annual, anything that may be had in flower the same year as the seed is sown. This may not be a strict interpretation technically, but it is a practical one. Our problem, aim, and endeavor, is to bring the annuals into bloom as early as possible; especially those whose blooming season is limited only by frost time, such as Verbenas, Margaret Carnations, Marigolds, etc. Earliness does not make so much difference with Poppies and the like, which have a definite and limited time of flower production. As a result of some years of experimenting there are certain kinds that I always start in the house; others from which I get the best results by starting in the coldframe; and yet others which are quite as satisfactory when planted in the open, in the places where they are to stay.

There are some biennials that by having the early boost of being started indoors may be tempted into bloom the first season. This is of course a distinct gain. Margaret Carnations are among these. I have a fine bed of these adorable flowers, started in the house last February, which came into bloom in the early fall, gave me fine blossoms of every color until hard frosts, and next year will be a blaze of color early in the summer. My first season's flowers were so much to the good. I stumbled upon a secret in regard to their well being last year: bank them—the separate plants—a little from time to time. Their tendency is to "wobble" and the banking makes a strong, stubby plant which grows much more thriftily.

The Iceland Poppy is another biennial that will give us first year's flowers if started early indoors. Verbenas and Salvias I always start in the house, as they grow slowly and it takes a long time to get the young plants into bloom. Pansies also, as otherwise one gets no early flowers. Stocks and Snapdragons make time in this way. I also always help along my "Masculine" to the extent of starting his tomatoes and parsley for him, and present him with many dozens of fine, stocky tomato plants—early, late, and "yellow plum"—to go first into the coldframe and then into permanent place at the proper time. If one has lots of room, other kinds may be added; but the above, in the order of their naming, are the ones I consider benefit most by this early start.

Late February or early March is the best time to begin operations. Collect some shallow boxes (my grocer saves mine for me) with cracks in the bottom; put in a layer of crocks (broken flower pots) for drainage, and fill with light, rich earth, sifted, to within one-half

A simple coldframe is a great help in getting an early start with plants from seed. Flats started indoors, or plants from a hotbed, may be transferred here in season and "hardened off" preparatory to planting outside

inch of top. If you wish to take the trouble, bake the soil first to kill some of the weed seeds. We always bring into the cellar a big box of earth from that prepared for our house plants in the fall. If you forget it (as we did once) you can buy a supply from the local florist. Nothing is better than rich leaf mould from the woods, or sandy soil mixed with very thoroughly rotted fine stable manure. Mix thoroughly and make very light before sifting. Press down with a board and scatter seeds evenly over the surface and then sift over enough more earth to just cover; press down again, moisten with a fine spray and cover the boxes with squares of glass. If your cook is good natured (or you are your own cook) and if you are in a hurry, set the boxes behind the kitchen stove until the seeds begin to germinate, which will be marvelously soon. We use a rubber bulb with very fine spray, for watering, which should not be done until the surface dries a little.

I use an extra bedroom with south windows, in which to grow my seedlings, but they may of course be distributed about if one cannot spare a vacant room. The extent to which these experiments in the early starting of seeds are carried depends largely upon how ardent a gardener one happens to be! I have an enthusiastic friend who gives up to his tiny potted seedlings a big bay window in his dining room. They are not especially ornamental, but so very interesting that horticultural callers always gravitate naturally in that direction.

After the seeds are well started, remove glass, and watch sharply at this time, as growth is rapid, especially if one is trying the kitchen stove forcing. I once lost an entire crop of young seedlings, which shot up with such rapidity as to bump their heads against the glass and become hopelessly deformed. Also watch closely for signs of "damping-off," which may sweep away your whole planting. My only remedy is to pull out affected plants, and hurry up the transplanting, which is to be into other boxes in regular rows—plants apart an inch or even less each way. ["Damping" is in reality a fungus and may be somewhat controlled by scattering hot sand over the surface of the seed bed.—Ed.]

Large seeds are best sown singly in shallow rows. Small seeds may be in rows on the surface or broadcast

A "flat" is a shallow box for starting seeds. After sowing, smooth the surface soil and firm slightly with a piece of board

When healthy and well grown, transplant again farther apart into similar boxes or small paper pots. Seedlings not affected by damping may grow longer, until true leaves develop, and require only one transplanting before being taken outdoors. Tomatoes should be set into the coldframe, as they require to be well grown and stocky before putting into permanent place.

As to the temperature when raising these little seedlings, keep as near 50 or 60 degrees at night as is convenient, and 70 or so during the day. While the glass is over the boxes keep watch lest the air should get too hot during sunny days; shift the glass a little to give air. Open a window a while when mild, for these small plants, like our regular window gardens, require good ventilation in order to flourish. Never let them get too dry, as the tiny rootlets are very delicate. Keep a steel kitchen fork at hand, and after the small plants are well established, stir the earth between the rows. Turn boxes and pots every day as the slender stalks stretch rapidly to the sun; I always set my paper pots of seedlings in paper dry goods boxes, for convenience in turning.

Other annuals, as Marigolds (French and African), German Asters, Zinnias, Schizanthus, Salpiglossis, etc., we sow broadcast in early May, in sections of the coldframes, sifting earth over the seeds and pressing down with a board, and labeling each section. Keep well watered with a fine spray; lift glass during middle of day during a possible "hot spell." If one has always considered it too much of an undertaking to fix a coldframe, I advise a change of mind without delay! A little help at the start and a very slight expense as to boarding and a couple or so of old sash, and the thing is accomplished! And of of course ready-made frames may be bought "knocked down." It is truly surprising how many seedlings may be raised in even one frame, if that must be the limit of equipment.

When danger of frost is over, transplant into permanent place in the garden. Asters, Zinnias, Cosmos, Marigolds, etc., we plant in parallel rows, filling empty corners, and spaces made vacant by very early bloomers, with the extra ones. Use the garden line as a marker, patting it down in the soft earth with the hoe, to make a visible line; remove, and bring a pan, or box, full of the young plants. Thrust trowel into earth in designated place, work it back and forth once or twice, and into the crevice thus formed hold a seedling; remove trowel, pour in carefully a little water and fill in and then "firm" the earth around the little plant by pressure of the fingers; proceed at regular intervals. This is the most rapid and effective method of transplanting. When planting Asters work a little wood ashes into soil; it lessens danger from both cutworms and root lice, besides being a fertilizer.

Mourning Bride, double annual Larkspur (one of the most beautiful and valuable of the fairly recent novelties and which gives us almost the latest blossoms in the garden), Nasturtiums, Mignonette, Sweet Alyssum, we find do as well planted directly in their permanent positions after danger from frost is past. We plant all of these in parallel rows, pulling out seedlings until the remainder stand about four inches apart. Of these, all (except Mignonette) may be transplanted to fill vacant places. My experience, however, is that nearly everything *may* be transplanted, if done carefully, holes half filled with water and earth sifted in and then firmed; select a cloudy day if possible or make the best of the moments before an impending shower. Especially choice or well-beloved specimens may be covered with empty flower pots; or, with two long boards brought together at top to form an inverted "V"; or with shingles canted effectively against the sun. Last year, in face of the jeers of my family, I even tried transplanting self-sown Poppies, proceeding calmly with a long row bordering the entire length of my garden walk, and a gorgeous band of brilliant color rewarded my efforts and confounded the family's Cassandra-like predictions. When starting Poppies, however, it is best to sow broadcast in permanent position. The poetical direction of a botanical authority, "Plant poppies on the vanishing snow," has always clung in my mind. These may be planted at two weeks interval, if wished, in order to insure a long blossoming time.

Even without either hotbed or greenhouse, some arrangement may be devised for taking advantage of the house heat for getting a start

Which Radishes, and Why — By Adolph Kruhm, New York

WITH YOUR NEEDS FULLY UNDERSTOOD IT IS EASY TO HAVE RADISHES THAT WILL COME UP TO YOUR DESIRES—GET THE RIGHT TYPES FOR THE TIME THEY ARE WANTED

[EDITOR'S NOTE.—*Three years ago Mr. Kruhm contributed a complete series of articles on efficient ways of growing the popular garden vegetables, and had something to say about the varieties to be grown where quality was the prime object. In the present series, of which this is the first article, the reader is taken a step farther and is introduced to the finer distinctions between varieties, groups of varieties, strains, types, etc. No ordinary gardener can be expected to keep critically informed on the modern progress of varieties; and the elimination of the "too-much-alike" is a big problem. Mr. Kruhm interprets these things so that the average man may avail himself of the expert's acquaintance with the behavior of actual types, i. e. groups of varieties, and will think of varieties as offered in the catalogues as forms of a type, rather than as mere names having no relationship to each other.*]

IN THE first place ask yourself "What do I want? Round or long radishes; red or white?" After that, ask "When do I want them," and then utilize the information supplied here to get the "worth-while" kind of a radish crop.

Radishes are easily the most popular crop in the home garden and there is no section of the country in which they may not be grown to advantage provided the requirements of this crop are considered. It is of small use to attempt growing long sorts on stony ground or any ground having a hard subsoil. In such a case select small turnip or globe shaped sorts. And last spring taught me the lesson that soil may be too rich for certain kinds of radish. Don't plant *long* radishes in too rich or too highly manured ground since they positively seem to attract all sorts of worms, maggots, grubs, etc., regardless of the fact that these vermin were never before in evidence.

Radishes are not particular as to soil, location or weather conditions. They do well in poor soil, if you are willing to stretch a point in time of maturity; they thrive in the shade if you give them lots of cultivation and they grow in coolest weather when even the small spring sorts will remain solid and crisp for a longer period than during a hot spell.

Everything considered, radishes are the most "democratic" crop produced in the garden and there is no reason why everybody should not have them in prime condition throughout the season. Since this is a "reason-why" age, I am first going to explain why certain sorts and certain types may be disregarded altogether by the home gardener.

Years ago, when this country was in the pioneer stage, our forefathers grew certain sorts because there were no others. If there is one human emotion that should not be displayed in the making of a home garden, it is the "worshipping" of old idols. Among radishes, you need not depend upon the yellow-skinned sorts for quality "because your grandfather grew them." They are obsolete and a study of many years has convinced me that there is absolutely no excuse or reason why our seedsmen should continue to list them.

For winter use the large rooted winter types only (White Chinese or Celestial)

WHAT YOU CAN EXPECT OF THE STANDARD VARIETIES OF SPRING AND SUMMER RADISHES

VARIETIES	SOWN	FIRST ROOTS READY	50% READY	SIZE OF TOPS WHEN OF EATABLE SIZE	KEEPING QUALITIES*	SPECIAL NOTES
Extra Early Scarlet Turnip	April 24	May 28	June 4	8–10 small leaves	good	Not as popular as "white tipped" sorts
White Box	April 24	May 30	June 10	large	excellent	Best small white sort
Sparkler	April 24	May 25	May 31	6–8 medium leaves	good	Finest "Scarlet White Tipped" strain
Hailstone	April 24	May 22	May 27	6 small leaves	fair	Best extra early White Turnip
Snowball	April 24	May 23	May 28	6 small leaves	fair	Use quickly. Globe Shaped
Rapid Red	April 24	May 21	May 25	4–6 small leaves	excellent	Stands well for three weeks
Crimson Giant Globe	May 1	May 26	June 2	8–10 large leaves	fair	Use quickly
Vick's Scarlet Globe	May 1	May 31	June 10	8–10 large leaves	good	Really an elongated Globe
White Olive Shaped	May 1	May 25	June 2	6–8 small leaves	fair	Use quickly
Scarlet Olive Shaped	May 1	May 25	June 4	6–8 medium leaves	good	Not as popular as next
French Breakfast	May 1	May 25	June 2	6 small leaves	good	Fine companion to "Sparkler"
Icicle	May 1	June 4	June 12	8–10 large leaves	excellent	Best general purpose sort
Long Scarlet Short Top	May 1	June 10	June 15	8–10 large leaves	good	Good general purpose sort
Cincinnati Market	May 1	June 10	June 20	8–10 large leaves	excellent	Stands heat well
Lady Finger	Summer	June 12	June 22	big tops	excellent	Of firmer texture than Icicle
Chartiers	Summer	June 10	June 22	big tops	excellent	Splendid hot weather sort

*Note: "Fair" sorts deteriorate at end of first week. "Good" sorts stand 10 days–2 weeks. "Excellent" sorts are good as long as they last.

Hailstone (left) and Snowball (right) are representative of the Flat Turnip and Globe Shaped types

After the "Pioneer" period came a time when the "fakers" thrived and a lot of curiosities were passed on to "easy going" planters who were anxious to have something "different." In the radish line, this period is fitly represented by the striped and speckled Triumph—a pretty, round, creamy colored sort with lots of carmine speckles or spots—which get "spongy" over night and just looks pretty—that's all. Last summer I inspected a 100-foot row of this sort, grown from imported seed, which put Heinz's proverbial "57 varieties" to the bad for a variety of different shapes, sizes and colors.

Finally, about fifteen or twenty years ago, American home gardeners entered the "reason-why" era, and from that time on real progress is recorded in every kind of American vegetable.

Among radishes, progress meant a classification according to shape and season of maturity and we have now reached the point where there is absolutely no reason for failure with this crop if certain fundamental principles are kept in mind and applied.

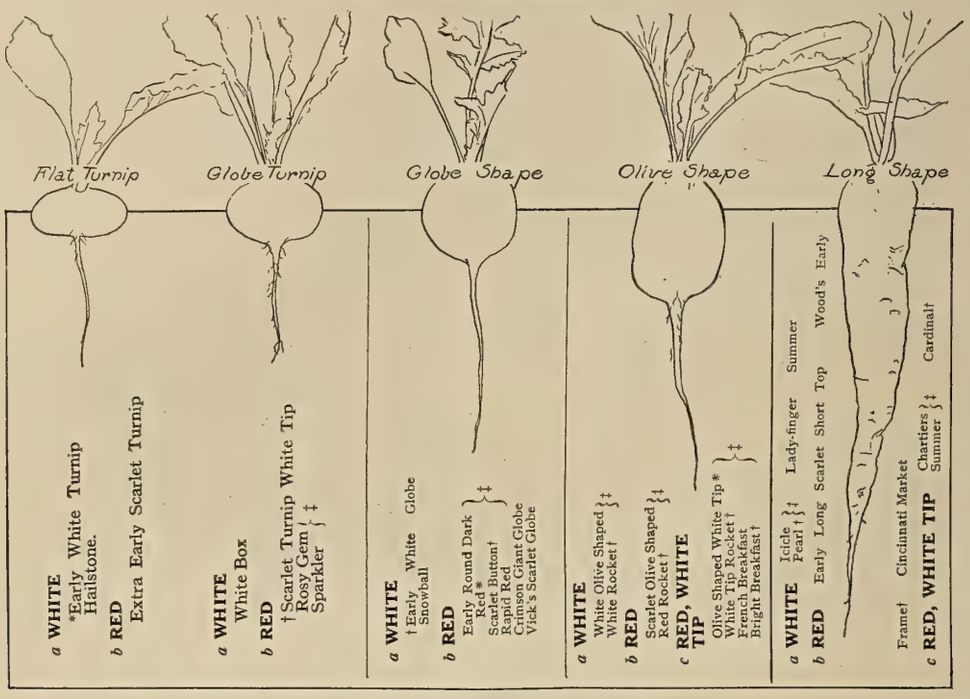
Let us start with the seeds. Two distinct kinds are offered; American grown and imported. The American grown radish seed may come from Michigan or California, imported strains from any one of four countries in Europe. Of *one* point I am certain: I would rather have a good strain of California grown radish seed than some of the imported stocks now "dumped" upon the American market.

Considering the best of each class, both have their good and their bad points. California grown radish seed produce roots with larger tops, of varying color and of rather irregular shape, while the best imported strains have small tops, are of deep, true colors and of uniform shape. BUT—American grown radish seed grow roots that stand the fickle moods of our climate from coast to coast. Roots that are solid when those from the imported seed are "spongy," roots that are mild in flavor when those from imported seed are as hot as the weather! The difference in cost of seeds by the ounce is immaterial—try both for yourself.

The confusing multitude of varieties

CHART SHOWING HOW RADISHES ARE CLASSIFIED ACCORDING TO SHAPE

(Key to the valuation of the different types)



* Obsolete † Superfluous ‡ Too much alike to be grown at the same time

makes it difficult for the private planter to really find what he wants or needs. Therefore I present a chart offering a simple analysis. Notwithstanding the fact that hundreds of *varieties* of radishes are offered, they may be reduced to thirty or forty dependable *standards*. Even among them, we find a certain amount of duplication in type, enough to cause our editor to tell me not to forget "the too-much alike" varieties. So I have applied the "knife" and cut down the list until (in table No. 2) we have the rock bottom of dependability in early radishes, together with a certain record of "behavior" of the different sorts.

Scarlet Olive Shaped, on left, is typical form. Half long type shown on right

Allowances must be made regarding the time of maturity for weather and soil conditions play a strong part in the development of radishes regardless of the variety itself. For instance, Burpee's Rapid Red, the most thoroughbred of all extra early red Globe Shaped radishes, ordinarily produces roots of one-half to three-fourths inch in diameter in eighteen to twenty-one days from date of planting. BUT—if, after two weeks of good growth in best of soil, under most careful cultivation, the temperature goes down to 45° and stays there for a week each day and night (as it did last spring), blame neither seed, variety nor the soil if it does not live up to its record.

The tables supplied are concentrated on spring and mid-season radishes, since these are easily the most important to 90 per cent. of all planters. No attention whatever has been paid to the innumerable so-called forcing strains of radishes since my experience is that they are of no use in the open garden. Many years of practical experience teaches me that it is wrong to offer them in a retail catalogue since they create anticipations that are rarely ever fulfilled.

Personally, I am satisfied with a list of sorts which closes the season in August or early September when Long White Vienna, or Lady Finger, and Chartiers should be at their best, from seeds sown early in July. People who want the crop throughout fall and winter must look for larger, later sorts, with flesh of firmer texture and of better keeping qualities.

White Strasburg and White Stuttgart are admirable summer varieties. White Strasburg is of long shape—almost like a parsnip root; White Stuttgart is of elongated globe or even cylindrical form, depending upon soil conditions. Both sorts have firm flesh of mild flavor until they are long overgrown. White Stuttgart gets larger than Strasburg.

In connection with the winter sorts, we have to resort again to the "sifting down" process. There are round, half-long, and long sorts of white, black, red and yellow color. As before, eliminate the yellow-skinned varieties. They are obsolete and any claims made for them cannot be substantiated under wide and varying conditions of soil and climate.

Round Black Spanish and Round Scarlet China stand well to the front in merit, while California Mammoth Winter gives splendid satisfaction as a large, oblong sort. Long Black Spanish may be considered *the* standard long winter radish of two continents.

A few suggestions as to a "schedule" for growing radishes and a few hints how to grow them may not go amiss for beginners among the readers of THE GARDEN MAGAZINE.

For a steady supply sow any of the sorts mentioned in the table, starting with two 15 ft. rows as soon as the ground is fit to be worked. Supplement this initial supply by repeated sowings of 15 ft. rows one week apart until May 30th, when the small spring sorts should be discarded in favor of Chartiers and Lady Finger. Icicle will also do well during the early part of the summer, but I would not sow it after June 15th. At the end of June or beginning of July sow the winter varieties. These make very large and hardy plants which will keep on growing until the first frosts nip the foliage, when they should be dug or pulled and stored in sand or soil in a frost-proof cellar.

Rapid Red (left) and French Breakfast (right) typify the Globe Shaped and Olive Shaped respectively

The Making of Our Home—By Mary T. Richardson, New Jersey

SIMPLE TRANSITION OF THE ORDINARY HOUSE AND LOT INTO A REAL HOME WITH A PRETTY AND PRODUCTIVE GARDEN—A CASE TYPIFYING MILLIONS OF DWELLINGS ALL OVER THE LAND

PICTURE a gray shingled little house, surrounded by tall shrubs, with a Wisteria growing luxuriantly over the porch; a wide lawn, bordered by shrubbery and hardy flowers; a garden supplying vegetables enough for a family of six; grape vines and peach trees laden in season with luscious fruit; cherry and pear trees beginning to bear; young apple trees; an arbor and pergola clothed with Roses—five years ago this was a half-acre meadow! Six years ago we were city dwellers, absolutely unversed in the ways of growing things, knowing the country only as we saw it in our short summer vacations; but the yearly miracle of spring called to us until we could not stand the city streets, and we boldly set out to find a home in the suburbs, near enough to the city to commute daily, but far enough to be "real country."

We wanted a house all made, convenient to the station, with beautiful gardens, an orchard, and a big lawn; an ideal hard to attain. In the end we rented a house in the "village," and set about finding a place to build. We had to give up our vision of ready-grown trees, and eventually bought a plain, flat, rectangular half acre of meadow land, on the outskirts of the town, and near the foot of a picturesque wooded hill. We did have our view ready-made—but that was all! Everything else we made or planted, and I will say—"as shouldn't"—that few would suspect that the result is only five years old. Yet we performed no miracles, did nothing that any man and woman with an ordinary supply of gray matter could not equally accomplish.

When I reflect how "green" we were to start with, I wonder that we did not make more mistakes. Perhaps we did make more than we realized—nature is a wonderful coverer of mistakes. She is so willing—so eager—to help out! We did study every book and magazine we could find on house-building and garden-making. We made many plans, finally deciding upon one which we followed to a certain extent—but the garden grew in some directions to suit itself, quite away from our plan. And let me say right here that the whole place was a gradual growth; the first year we built the house, made the lawn, planted some of the shrubs and trees; the next year we added more trees, hardy plants, and the grapes; the next, built a summer house and set out climbing Roses about it; and so on. And how we moved things! Evergreens and flowering shrubs, Roses and Peonies! Even a good-sized apple tree in leaf, one spring! By doing it ourselves, with a loving care which is very hard to hire, we have lost nothing by the moves made. Much of the work in garden and shrubbery we have done and still do ourselves. So far, we have managed garden and beds—and lawn—with the help of a hired man for two days a week.

Hollyhocks are invaluable for planting about the new home; they grow to a good height and flower freely

THE PLAN DEVELOPS

The accompanying plan gives an idea of the place as it is to-day—it may be

"A plain, flat, rectangular half-acre of meadow" was the beginning of things

Second year: a few quick-growing trees and some herbaceous plants well established

Third year: shrubbery greatly increased, grouping and massing improved

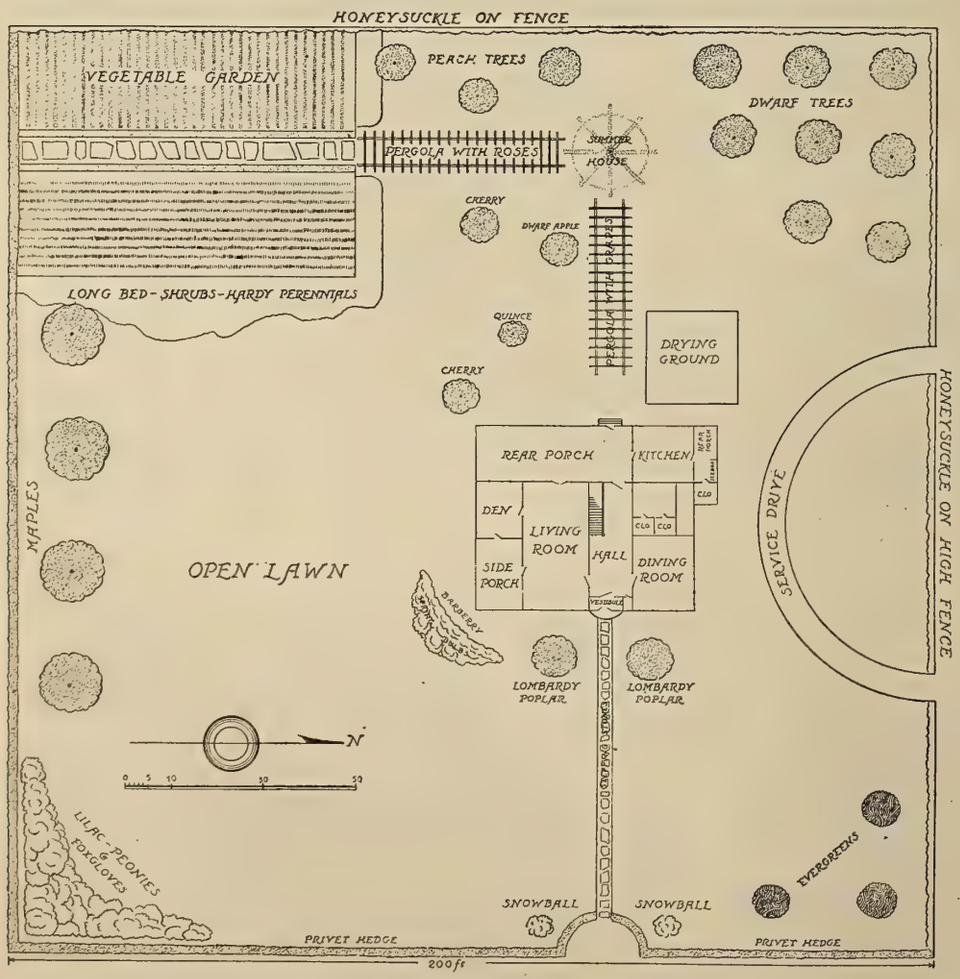
Fifth year, general plan well advanced and special features developing

German Iris, planted in mass, yielded flowers in profusion for cutting

somewhat changed to-morrow, for nature has a way of pointing out improvements to us! But it cannot change very much now—until we acquire another half acre, put up a garage, plant an orchard, move the vegetable garden, and use the present vegetable space for flowers, with a sun-dial or bird bath—or perhaps a pool—even a greenhouse!

The house, about fifty feet square, was set seventy-five feet back from the road, and well on the north half of the lot. This last to satisfy a cautious conservatism—it left a building lot in case we should ever "want to sell." As it has turned out, nothing but dire necessity would persuade us to sell an inch—but our plan has worked out well. It gives us a wide, open lawn. The house faces east, and the trees were planted on the west and south, chiefly. Privet on the front and south side, Honeysuckle on a rustic fence at the back and north side, give us privacy. But that we wanted a high hedge, we should have planted Barberry in place of the Privet—I sometimes wish we had put in Barberry and Spiraea—but we would not if we could, substitute anything for the Honeysuckle. In the spring it scents the air all around us for a considerable distance, and all summer it blossoms off and on.

Back of the house are the drying ground and some dwarf fruit trees, but the vegetable garden is on the south half of the lot. An irregular bed, 75 feet long, of shrubs and hardy plants, screens it from view. A pergola from the summer house to the garden is covered in June with the lovely pink of Dorothy Perkins Rose, and the summer house itself is gay with yellow and white Ramblers, Trumpet vine, and Clematis. In the long bed are Altheas, Spiraeas, Deutzias, Snowballs, Forsythia; and Hollyhocks, Phlox, Delphinium, Coreopsis, Foxgloves, Canterbury Bells, and a few annuals. In the southeast corner are Lilacs, Peonies, and Foxglove—a very happy combination, by the way.



The general plan after five years' growth. This may be modified or changed considerably in the near future, as necessary, to give accommodation for extra features in the garden.

FRUIT TREES IN BEARING

The grapes bore well four years after planting. They comprise the following varieties: Worden, Moore's Early, Niagara, Delaware, and Concord. We prune and spray them carefully every winter. The dwarf apples are the Northern Spy, Gravenstein, and Newtown Pippin. The other fruit trees we planted are an Oxheart cherry, a sour cherry, a Bartlett pear, a Kieffer pear—which last got in by mistake, and upon which we promptly tried some amateur grafting, with the result that it now has two strong branches of Bartlett—and Crawford's Early, Morris White, and Wonderful peaches. All the fruit trees are growing well, and the peaches and sour cherry have borne fruit. The dwarf apple trees have not borne yet, and this has disappointed us a little, but perhaps we expected too much! The only total failures we have had have been the currant bushes, which have pined away ever since we planted them. Our successes outweigh our disappointments, and our little trees have been such a pleasure! To watch them grow, to care for them, to eat the fruit of our very own vine and fig tree is living!

Plants that Flower in the Shade

IF THE situation is dry as well as shady, the choice is strictly limited. Among the most satisfactory are Bugle, Goldenrod, Alum Root, the Cone Flowers, Goldenrod and Aruncus, with Evergreen Candytuft as an edging. If normal moisture is available, add Anemone, Lily-of-the-valley, Lemon Lily, Liverwort, Kniphofia, Ground Ivy, Globe Flower, Coltsfoot, Wild Pansy, Virginia Cowslip, Forget-me-not, Cardinal Flower, Blazing Star, Florentine Iris, and the following native ferns: Ebony Spleenwort, Sensitive fern, Royal fern and common Polypody.

For early spring effects the Dogtooth Violet can be planted freely. The best blue flower for shade is Platycodon.

Vista in the gardens of Shadow Brook, Chesterfield County, Virginia. The native Red Juniper gives the chief accent. These and other evergreens used were planted in March, and at once made good growth

Spring Planting for Evergreens in the South

By J. M. Patterson, Virginia

WHY THIS IS THE RIGHT SEASON FOR MOVING CONIFERS AND BROAD-LEAVED EVERGREENS IN THE WARMER REGIONS—NATIVE MATERIAL THAT CAN BE UTILIZED

THE practical planting time for evergreens in the South is the earliest spring. Plant your evergreen tree or bush the first part of March or as soon in the month as a spade can be gotten into the ground, even though the ground is wet; and the warm April rains will be so soothing and hospitable that although the locality is strange the woodland conifer or that from the nursery will be quite established in its new quarters before the hot days of June.

There are of course exceptional springs with long seasons of drought; in that event, the plant must be watered as the roots should never be allowed to get dry soon after planting. Ordinarily it thrives after one good soaking at the time of planting. It is most essential in transplanting evergreens from the woods to keep the roots protected from the wind, as the sandy soil drops away from the roots and there is no ball of earth to protect them as is the case with nursery grown stock, which is one great point in favor of what the nurseryman has to offer. Many growers advise planting evergreens the latter part of August or the first of September. These directions are evidently not meant for the South, as I have learned from sad experience. In a third attempt to use the Scrub Pine as a hedge I planted it in the spring, following my second failure at summer planting. The pines grew and flourished, only two dying, and for some years this hedge has served to shield the coldframes from the north winds and to act as a screen from the main driveway leading to the house.

If I had had no other experience with transplanting evergreens than this one hedge, I would feel justified in urging people in the middle South to plant them only in the spring.

The reasons are obvious. After the long hot Southern summers the ground is dry to quite a depth, then September is usually a month of drought; October is a cooler month but there is little rainfall; the high winds come in late fall; the alternate freezing and thawing of winter follow, and the plant is loosened in the ground before it has gotten well established, and so nine times out of ten it succumbs to the hardships of winter.

After digging up the plant cover the roots immediately with burlap or heavy cloth, it would be even better to wet the burlap. The Cedar has a long tap root with short hair-like roots as feeders; the pine has more lateral roots and the tap root is not so long. A careless workman is apt to break the tap root and it is most essential to the life of the plant to keep this intact; but if the roots should be torn or bruised, cut them off clean and straight.

The holes to which the conifers are to be transplanted should be made before the trees are dug in order to plant them quickly. Fill the hole with water, put in the trees and then the top soil, holding the tree straight; it takes two to plant the tree properly. Put in the soil gradually, a little on each side; and after the water has soaked through thoroughly more can be put around the plant. The next day this soil should be packed down closely, flat and solid with the stub end of a heavy post.

I have transplanted successfully Cedars five feet in height, but it is far better to put in those two feet high. They need less moisture and less nourishment, therefore, it takes less time for them to regain their poise in a new locality and they are not so easily tossed by the wind and thus loosened in the ground. If the ground is occa-

The native Holly develops into a handsome tree of pyramidal form and is adapted to a remarkably wide region

sionally dug up around them to the depth of a few inches as a mulch and a little manure worked in these small cedars grow surprisingly fast.

The Cedar or Southern Red Juniper (Juniperus virginiana) is so adaptable to formal gardening that one who is fond of topiary effects has material right here at home to indulge his taste. It naturally takes the columnar shape, and when older a slender conical shape. The feathery foliage is exquisite, and being an evergreen it points up a place in the architectural scheme far better than the Lombardy Poplar, and grows almost as rapidly, and besides the latter has a bad habit of throwing up suckers.

Two Pines, the shortleaf (Pinus echinata) and longleaf (Pinus palustris), are beautiful to the nature lover, but they are so common throughout the South that country folk speak of them contemptuously as old field Pines, scrub Pine and the like, and otherwise show their venom by cutting them down ruthlessly. The fragrance of these is quite as distinct as that of the White Pine of the North, though the trees are not so majestic, and where a tree has reached its full height of forty or fifty feet the foliage has become thin and scraggly. They are at perfection at fifteen feet. The branches then stand out straight and are full of the rich, green needles making a symmetrical tree, pyramidal in shape. Individual trees should be 20 to 40 feet apart. Though they are short lived they are quick growing, which cannot be said of most conifers. The green of the Pine is fresh and rich and not dark, and is therefore more cheerful than many other conifers, notably the Cedar, which turns a dull brown in winter.

The Evergreen Spindle Bush (Evonymus americanus) in its native habitat, the woods, has a creeping habit; but brought out into the open it takes an erect form and becomes a bush. It then assumes a graceful shape and the stems, always a good clear green, carrying a few small ovate leaves set far apart. It can be trained into a stocky shrub and lends itself well to cultivation; flourishing under good treatment it is a thing of beauty in the blossoming season with its faint lavender-tinted flowers, shaped like a maltese cross. Then in the fall it is in its perfection of beauty and its slender limbs are swaying with the pale pink fruit, also maltese cross shaped, hanging partly open showing the scarlet sac which encases the seed.

The Kalmia and American Holly are common to both mountain and tidewater sections and lend themselves well to garden effects. The Rhododendron (R. catawbiense), the handsomest of all native shrubs, and the Hemlock (Tsuga caroliniana), the most refined and graceful of all conifers, are at home in the mountains, but adapt themselves beautifully to the coastal sections and

Southern gardens can safely use the native Rhododendrons and the tender hybrids, which are raised from the tender native species

Magnolias flourish in the warm South; their flowers are large and specially attractive. *M. glauca* is native to swampy soils

The Southern Hemlock has a more attractive "texture" in leaf effect than the common kind and is well adapted to garden use

are easily domesticated to garden or lawn if properly planted.

The Hemlock makes a finer effect if planted as a specimen tree, far enough removed from other trees to spread its graceful limbs. If planted when very small and close together it makes a compact, long lived and beautiful hedge. It is very hardy, and has a more graceful habit and softer texture than the Northern or summer Hemlock.

The Rhododendron cannot stand as hard treatment and rather pines for the shade and cool of the mountain streams, but if these conditions are imitated fairly closely, it does well. It is therefore best planted in the shade of trees, away from the southern and western suns. The bed should be dug three feet deep with drainage made of stones, old roots and stumps, and over this a thick layer of moss and sod turned upside down, leaves and wood's earth. Soak the earth thoroughly when the Rhododendrons are planted and keep well watered throughout the dry season. Do not put on any manure until they become established, and then use well rotted cow manure. Always plant in the early spring. It would be better to pull off all the large leaves. Kalmias should have the same treatment.

If I say that the Hemlock is the most graceful of our native trees whose habitat is the mountains, I must say that in the coastal regions there is a tree which surpasses all others for stateliness, beauty of form, flower, fruit and leaf, and that is the American Holly (Ilex opaca). It is an evergreen par excellence for all and every purpose. As a single specimen tree it is superb, taking on the pyramidal form and its glossy leaves with concave scallops catch the light in a wonderful way. It gives a

brightness and splendor to the woods that no other tree does.

It is so adaptable to garden purposes. It can be trimmed back to a compact shape or else allowed to grow its own superb way. If planted when quite small and close together it makes a hedge to last for ages. It grows more rapidly than one suspects. The new green leaves in the spring and the tiny, delicate scented flowers along with the old leaves of a darker hue last long in the memory of a nature lover. In transplanting in the spring, pull off all old leaves, keep the roots, moist and plant immediately after digging from the woods.

Plant some Swamp Magnolia, Sweet Bay or Laural Magnolia (M. glauca) on your lawn or in the garden. It grows to a small sized tree, that is easily fifteen or twenty feet. The glossy, large ovate leaves with a silvery gray lining and the sweet scented white blossoms are an addition to any garden.

A word too for the Scotch broom (Cytisus scoparia), for although it is not a native but rather an escaped plant, like Hall's Honeysuckle, it is generally spoken of as wild. The older farmers still hold a grudge against one of our farmer Presidents, Thomas Jefferson, for having brought the first plant from Scotland and setting it out on the lawn at Monticello. The whole little mountain is covered with it now and many a field too, for hundreds of miles away. Its long, tender, delicate branches are a vivid rich green all winter and in early May it is a shower of golden pea-shaped blossoms. It clothes sandy soil, railway cuts, etc., in princely manner.

Besides the native evergreens there are others which are so hardy and of such rapid growth that one should by all means have them in one's garden. Most ornamental for the formal garden is the Irish Juniper, which grows in a slender columnar shape, and has a bluish, green tinge. Its age of usefulness is scarcely more than eight years, however, and its maximum height is eight feet, so one should keep a succession of them coming on.

The Taxus baccata or Yew has the same effect and is very long lived. It is not as fast growing, however, and the color is a very dark green.

The Arborvitaes are pretty in leaf and shape for a few years only. They soon get thin and scraggy, but while they last are lovely in color and form.

Plant evergreens singly, in groups and as hedges. Then the garden and lawn will always look inviting.

Why You Need a Greenhouse—By W. C. McCollom, New York

AN HONEST STATEMENT OF THE POSSIBILITIES AND LIMITATIONS OF A SMALL GREENHOUSE—WHY YOU CANNOT GROW EVERYTHING AT ONCE—WHAT YOU ACTUALLY MAY GROW AS COMPANIONS

THE greenhouse serves two decided purposes in the summer garden economy — through its aid the yields from the flower and vegetable gardens together are increased tenfold and the plant enthusiast is enabled to grow for outside work many plants that, without a greenhouse, cannot even be considered. Quite apart from this is the production during the long dreary days of winter, of plants and flowers to make our homes attractive, fresh vegetables that far outclass in quality the finest outside grown product, while the almost indispensable service of the hotbed and frame is pretty generally recognized. Yet many people to whom the question of cost is not a serious one are still prone to consider the greenhouse in the light of a luxury rather than as a machine for increased efficiency.

In selecting a site remember to avoid wet, low ground or greatly exposed places; that gentle slope to the south is ideal; but most important of all is the relation to the surroundings, which means convenience of access from both garden and residence. If the greenhouse be built with a southern exposure the service building should be on the west end which gives free access to the morning sun; if run north and south, put the adjuncts on the north end, which means shelter from cold winds of winter. An even span is generally the best, the only exception being on a steep southerly slope, in which case a three-quarter span house may be more economical to build. Water is the best means of heating (and be sure you have plenty of it), all coils to be valved on both flow and return so that separate compartments can be controlled as separate units.

Provide ventilators on both sides of the ridge no matter which way the greenhouse faces. Ventilation can then always be given on the leeward side. Though the width of a greenhouse is but a matter of preference, the decision must be made with regard to certain fixed considerations. For instance, the narrower the house the less will be the available headroom and the greater the percentage of surface exposed to radiation, and in consequence a higher proportionate cost both of erection and maintenance. From a growing point of view the wider the house the better. Experience shows that a greenhouse 18 by 50 feet, divided into two compartments, is very practical and is about the minimum size for all-the-year-round efficiency. It is large enough for really big returns, it has sufficient head room to accommodate practically all forcing plants, such as Sweet Peas, Roses, Snapdragons and other tall plants.

With two compartments a greatly increased variety of plants and flowers is available because of the different growing conditions maintained in the different compartments. Many plants require starting at a lower temperature and finishing in a higher one. For example, the forcing type of Lilies, Freesias, Callas; subjects having decided growing and resting periods (such as most Orchids and Amaryllis). Hard-wooded forcing shrubs, such as Lilac, Wisteria, Azaleas, Hybrid Perpetual Roses, etc., do better when started slowly in a low temperature and taken into a higher one when actual growth is started.

ASKING FOR TOO MUCH

The one great cause of failure in the small greenhouse is attempting too great a variety, under the thought that a greenhouse should produce everything. True, a greenhouse will grow everything, but *not all at once!* Different classes of plants demand different growing conditions and the very first thing for the grower to decide is what group or class he favors. The only way to have an unlimited variety of plants under glass is to have a big range of growing houses with numerous compartments.

Mrs. Jones visits Mrs. Smith's place and comes home with a few cuttings of a new Begonia. On her next trip she gathers in a few roots of a wonderful new Snapdragon; then it is a slip of Allamanda or some other tropical vine, perhaps a rare Orchid. And these various plants, gathered from various greenhouses, she expects to grow under one condition or even two. It cannot be done. A greenhouse with two compartments is usually heated for the two standard crops, Roses and Carnations. These are taken as standards expressing temperatures of about 60 degrees, nights, in one compartment, and from 50 to 55 degrees in the other. These temperatures will be found *satisfactory for a larger variety of forcing plants* than could be grown under any other two temperatures.

IN A ROSE TEMPERATURE

The young Rose plants are usually put into the bench during May or June and a growing condition for them must be maintained from that time on, as the Rose is very exacting and will not take second place. This prevents the use of the house for any plant that cannot be grown under the conditions required by the Rose. Among such are, however, quite a number of desirable plants.

Asparagus plumosus and Smilax can be grown, and will be very useful for cut green during the winter and, as they are very productive, only a small corner need be given them. Begonias and Gloxinias can also be grown in the rose house during the summer. Swainsona, if started the same time as the Roses, will be in prime condition for cutting in

winter. Eucharis, Poinsettias and Gardenias can be grown fairly well, too, although these plants revel in a higher temperature. They are started in early spring and by preference should be given space on a bench with bottom heat available. Bottom heat is provided by boxing in the sides of the benches to include the pipes, so that the heat must pass through the soil. Callas, Freesias, and all the various types of Easter Lily are usually started during fall in frames, and when actual growth has started they can be brought into the rose house. In some cases, however, they are planted directly into the benches. Lily-of-the-valley can be forced in the rose house, if planted in boxes, and the boxes placed on the pipes in the warm end of the house. A drop curtain is placed on the side of the bench to keep the plants dark. They must be watered copiously and can be brought up to the light to finish their growth. I have also seen the fragrant wax flower, Stephanotis, trained along the bench supports in a rose house, giving big returns from what otherwise would be waste space.

A few vegetables are not out of the range of possibility. Two or three cucumber vines of the English or frame variety in the warm end of the house provided with bottom heat, will keep any family supplied. Tomatoes will do well, and for winter fruit should be started not later than August 1st. Grow them on a rear bench so that they do not shade the Roses. On a side bench, since they do not require much head room, sow a few beans.

WHEN DECORATIVE PLANTS ARE WANTED

If fancy runs to decorative plants rather than to cut flowers, it would be better to keep the temperature slightly higher, say about 60 to 65 degrees at night, and more moisture in the air. In such a case the walks and under the benches should be sprayed frequently, and the benches covered with gravel for the pots to rest on.

In these conditions, all Palms, such as Kentias, Arecas, Phoenix, etc., and Cycas, can be grown, with all the different types of Dracaena. There are many handsome plants in this family. The Croton is also a highly decorative pot plant, with a wide range of color and here also the old trusty Rubber plant will be at home. And so, too, the Aspidistra, which of all plants is unsurpassed for standing abuse. Ferns of the "Boston" family (Nephrolepis) in all the diversity of form, the various forms of greenhouse Maidenhair (Adiantum) will flourish so that a compartment devoted to this class of plants should keep any well sized residence supplied with healthy stock the year round. By changing the plants in the dwelling every two weeks they may be kept in perfect health.

PLANTS FOR A "CARNATION" TEMPERATURE

After all, the Carnation is not so very exacting. There are two distinct classes of plants that can be grown with it according as the house is warm or cool. A temperature of 55 degrees at night is the maximum at which the Carnation will do well. At this temperature, good companion crops are Celosia, Cyclamen, Freesia, Fuchsia, Heliotrope, Hyacinth, Narcissus, Tulip, Pelargonium and Bouvaria, which is a fairly good variety both for cut flowers and for decorative plants in pots.

The best quality Carnations, however, are grown at a temperature of 50 degrees at night; true, you don't get quite so many flowers, but they are of better quality, and there is also a wider range of plants that can be grown at the same time. All the bulbous stock does well at this temperature, such as Allium, Hyacinth (both the Dutch and Roman), all the various types of Narcissus, Tulips, etc. If the Cranations are confined to the side benches, the centre bench can be used for tall growing plants, such as Snapdragon, Campanula, Schizanthus or Sweet Peas (although the latter do better in solid benches). I have, however, seen excellent results from Sweet Peas planted on raised benches. Other "cool" plants that can be grown in this connection are Cineraria, Calceolaria, Mignonette, Pansy, Primula and Stock. A few roots of Sweet Alyssum planted on the edge of the bench and allowed to trail over the side will be both attractive and remunerative.

Some vegetables will fit into the Carnation house. Cauliflower does excellently in the greenhouse, producing great snowy white heads, tender and full of flavor. Radishes, parsley and spinach may be grown. If the New Zealand spinach is used, it will produce abundantly all winter from the one sowing made in August. Lettuce, although it does best in solid beds, will do well on raised benches with a little extra care.

The space under the benches need not remain unproductive. Rhubarb will yield big returns from good sized clumps. One of the daintiest of all table delicacies is asparagus when forced under the greenhouse bench. Both are started from dormant clumps lifted from the garden. Try a few mushrooms; these are started from spawn and, while they are uncertain, with proper cultivation they should produce good results. The very finest mushroom bed I ever saw was under a bench in a Carnation house.

The impression that a greenhouse is useless during the summer is far from the truth. There is a number of pretty plants such as Gloxinia, Achimenes, Mimulus, etc, which will make the greenhouse attractive and are very good for decoration in the home. Melons can also be grown and will be of a quality superior to those outside. Although Chrysanthemums will not flower until the early fall, they can also occupy the greenhouse during the summer period. All kinds of outside flowering plants, such as Asters, Salpiglossis, Heliotrope, are of superior quality when grown inside during the summer.

Potted fruits can be grown in the greenhouse during summer. They are very productive and the fruit is a very high quality and enormous in size. Grapes, apples, pears, peaches, plums, figs, cherries and apricots can all be grown in pots and handled in this way.

If properly managed, a greenhouse will produce both good things for table consumption and beautiful things for home decoration every day in the year, besides making it possible to lengthen the season of the flower garden and raising the standard of production in the vegetable garden.

"Decorative" plants are those grown mostly for their fine foliage—Palms, Ferns, Dracaenas, etc. All these may be grown together in a night temperature of 60–65

Miscellaneous flowering plants, some vegetables, etc., require a night degree of 55. This is the best all-purpose temperature for the amateur's greenhouse

THE MONTH'S REMINDER

FEBRUARY 1916

For reckoning dates, the latitude of New York City is generally taken as a standard. In applying the directions to other localities, allow six days' difference for every hundred miles of latitude

THE earliness and to some extent the success of this year's garden will depend upon what you do in the first few days of February. Preparations for starting seeds and cuttings must be made at once. "Preparedness" is the secret of good results; nothing can be left to chance. Here are the things you will need; *check them up now, as you read*, and make a list of those that are not on hand. Make or buy what's lacking!

One Week for "Preparedness"!

1. *Soil*, preferably rotted sod that is light and fine; if you haven't got this, buy a bushel from a neighboring florist or market gardener, or put a box of frozen lumps from your compost heap beside the cellar furnace to thaw out gradually.
2. *Leaf Mould.* Unless your soil has been especially prepared it will have to be lightened with leaf mould. Get this from the woods, back of the roadside fences, hedge rows, or, if you live in the city, buy some from a florist. Or buy a bag of "humus."
3. *Sphagnum Moss.* This can be found in most swamps or can be bought very cheaply from any supply house; or coarse screenings of leaf mould or of sod can be used in place of it.
4. *Flats, two or three inches deep,* and "seed pans," in which to start seedlings; it is better to have some of each. The seed pans are particularly desirable for starting fine flower seeds.
5. *Screen.* An ordinary coal ash sifter will do for small scale operations.
6. *Watering Can* with fine "rose" spray.
7. *Labels,* and an indelible pencil—not a "copying" pencil.
8. *Tamper.* A smooth brick will do, but a piece of inch board, six by eight or ten inches, with a handle fastened to one side will take but a few minutes to make and will be very much more convenient.
9. *Straight Edge.* A piece of a lath or a yard stick.
10. *Small dibble,* which you can whittle in a few minutes out of a piece of soft pine, about six inches long, with a round point at one end, a flat one at the other.

Secret of Starting Seeds

THE only "secret" about starting seeds is the realization that the individual seed—big as a tumble bug, small as a grain of dust, as the case may be—is the *unit* with which you are working. *That,* + common sense, = success! Each individual seed is a wonderful little bomb. Give it warmth enough and moisture and it explodes! It is after the explosion, in nine cases out of ten, that the gardener goes wrong. If germinating seeds are kept too wet they rot; if too dry, the little germ may perish in a few hours.

How then avoid all these dangers, and succeed? There are four steps: (1) Preparing the soil—congenial environment. (2) Sowing the seed—getting the right depth and so forth. (3) Sprouting—maintaining the congenial environment. (4) Starting—giving suitable after environment.

(1), (2), (3), (4) + Common Sense = Success!

1. *Preparing.* Fill flat one quarter full of moss or other drainage material, then two quarters more of prepared soil, compost, or sod shavings. Pack well down in the corners. Water thoroughly, preferably by sub-watering. Let dry for half day or so, freshen and slightly press surface. Mark drills of suitable depth; for most vegetable seeds, about one fourth inch. Good medium sized flower seeds, such as asters, verbenas and phlox, slightly shallower; and large ones, such as marigolds, cosmos and zinnias, slightly deeper. All flower seeds such as ageratum, calliopsis, salpiglossis, should be barely covered from sight. *Very* small seeds, such as begonias, scatter over the roughened surface and press in. Make drills two or three inches apart. Small quantities of small flower seeds sow broadcast on seed pan.
2. *Planting.* Tear off one corner of the seed envelope, spring it open, tap gently with forefinger or pencil to jar seed out evenly. Sow thinly—ten or twenty to an inch according to the size. Firm gently into drills to insure contact with the soil. Cover lightly with sifted compost or cocoanut fibre. Tag carefully, with date and name of seed. If sub-watering has been carefully and properly done, the soil will be moist enough without further watering; otherwise, use fine rose spray, going over it two or three times to do thorough job without packing or washing surface.
3. *Sprouting.* Place flats or pans in suitable temperature, 50 to 60 degrees for hardy things, and 60 to 70 degrees for tender and tropical ones. Cover each flat or seed pan with a pane of glass or newspaper, giving slight space for ventilation. Quick-sprouting seeds will not need another watering until they are above soil. Watch the other flats carefully and as soon as the surface begins to dry water again thoroughly, preferably by sub-watering, otherwise use the fine rose spray.
4. *Starting.* The second step after the seeds sprout is to keep them growing and healthy until they are big enough to transplant. Give full light as soon as the seedlings begin to show above ground. A planting may be almost ruined by being left for less than a day covered up or under a bench in the shade. Keep the seedlings as near the glass as possible, as this tends to keep them short and stocky. Supply them with an abundance of fresh air. Rapid growth at this point is not desirable—forcing may be done later, if necessary, after you have a strong, robust seedling. Tend to the watering carefully. You can judge by the condition of the soil. If the little seedlings begin to look droopy and lose their perkiness, water them at once. Sub-watering lessens the danger of attack from the damping-off fungus. If this should appear, dusting over with flour of sulphur, or spraying with fungine or some other fungicide, will check it—*but no remedy will keep plants healthy if conditions are not right.*

Make New Plants Now

ANOTHER method of starting plants is by cuttings, or from sections of the growing plants themselves. If you followed last month's suggestions (on page 236), your stock plants of geraniums, ivy geraniums, heliotrope, begonias and so forth will now have plenty of vigorous new growth from which cuttings may be made.

The first step is to select them in a proper condition. The wood should be firm but brittle. To test: bend between the thumb and forefinger; if the wood snaps in two like a string bean it is right; if too old and stringy or too young and soft in texture, it will double up without breaking. Cut off the cuttings square or a little slanting with a sharp knife, making a clean cut. Three to five inches is plenty long enough. Two or three joints or buds are sufficient. Terminal growth, if not too soft, is the best; but that farther down the branches will also give good results. Cut back the large leaves a half or so and trim off close those nearest the base of the cutting. Keep the cuttings well shaded until used—it is well to let the bottoms slightly heal. Cuttings ought not to dry out till they wilt, but if they do so revive them by plunging in cold water before setting.

What To Root Cuttings In

CLEAN, gritty sand in a flat or bench (preferably the latter) makes the best medium for rooting. Insert the cuttings half their length, or more; and firmly, close together, but not crowding. Provide good drainage. Water thoroughly after setting. Shade from the bright sun for several days; after that apply water when necessary but do not keep the bed soaked. Keep slightly on the "dry side," but never allow the cuttings to wilt. Give abundant fresh air. Slight shade is desirable.

A few flats with holes and drainage material, level full of sand, and put over hot water pipes or radiator will start cuttings for a good many dozen plants, with little trouble. Next month we will tell you how to handle the young seedlings and rooted cuttings.

Plant this Month

¶ **Vegetables,** *inside.* Early in the month, cabbage, lettuce, beet, onion. Toward the end of the month; cauliflower, early celery, extra early tomato for pot plants.

For forcing: cucumber, tomato, melon, and cauliflower. (The time for sowing will depend upon when space will be available for putting them into permanent quarters.) Bean, carrot, radish and spinach, may be sown where they are to mature.

¶ **Flowers;** *To make good plants for setting out in the spring*—Pansy, Daisy, Celosia, Cosmos, Dahlia, Gladiolus, Lobelia, Phlox, Verbena, Sweet Peas (for individual plants.) Also sow now, Coleus, Begonia, Heliotrope, Salvia, and Canna should be given ten degrees more heat than the preceding.

For next year's greenhouse, conservatory or winter garden: Begonia, Cyclamen, Primula, Fuchsia, Gloxinia, Smilax, Cineraria, Jerusalem Cherries and Asparagus.

¶ **Roots,** *planted indoors for forcing for extra early and tender results,* asparagus, rhubarb, seakale, and "Whitloof" chickory.

EARLY THIS MONTH

Plans. We hate to mention it again, but—have you yet made definite plans for the coming season? If not, don't read the rest of this page until you have referred to January Month's Reminder, *and put down on paper what you mean to do.* Last month we insisted that you have your plans made by midnight on January 15th, *and we meant it!* Nevertheless, ir you will attend to this before you go to bed to-night we will give you all the help we can—otherwise we can't do even that. This part of the proceeding is up to you.

Don't Put All Your Orders in One Envelope

Orders. Very early this month all your orders should be sent off. To be sure that you have not overlooked anything, check up the following: (1) Seeds (2) Small Fruits; (3) Bulbs, Roots and Plants; (4) Ornamentals; (5) Accelerators; (6) Supplies; (7) Tools; (8) Repairs; (9) Fertilizers; (10) Last but not least, Irrigation Supplies.

1. *Seeds.* The *best are always the cheapest,* no matter what the price. Where possible, buy from the introducer of the variety. He is the person most interested in keeping the best stock. Always buy from a specialist: seeds from a seedsman, not a local hardware store, and plants from a nurseryman or plantsman. It is not always wise to send plant orders to a seedsman even.
2. *Small Fruit and Nursery Stock.* Buy from the grower, even if you have to make out another order or two. Get the best stock at any price. There are many fine, new varieties; buy some of them. Buy by the dozen or by the hundred, as the price is then much less. Get a neighbor or two to order with you if you can't swing it alone.
3. *Bulbs, Roots and Plants.* Deal direct with the grower or dealer who specializes. Order now, *even if the plants are not wanted for two or three months,* as orders are filled in rotation. Potted plants are always grown in small quantities as they will not keep over like seeds. This year let the other fellow get left!
4. *Ornamentals.* Get a few shrubs this spring. You will be surprised at the growth they make in a single season. Many kinds will bloom this year even. You can buy Roses, etc., *guaranteed to bloom this year!*
5. *Accelerators or Boosts.* During the last few years there has been much improvement in these little crop helpers—paper pots, dirt bands, forcing-frames and so forth. Look into them. Write for the catalogues. We will refund the money if you don't get enough information to pay for your trouble.

6. *Garden Supplies.* Labels, twine, trowel, raffia, plant supports, new garden lines, etc. Get supplies of these as they make for efficiency and neatness.

7. *Tools.* Money spent for garden tools is never regretted. Is your equipment complete? Couldn't it be improved? Are there not up-to-date attachments which you could get to go with your present wheel-hoe or cultivator, perhaps doubling its efficiency at very slight expense?

8. *Repairs.* Now is the time to replace broken or worn parts. If the axles are worn and the wheels wobble, get new ones. A needed repair not only means better work, but it saves the rest of the machine. *Actually try* your sprayers and other things to be certain that they are O. K.

9. *Fertilizers.* Buy your fertilizer early. Put it off and you may find that your local dealer hasn't what you want. For a complete fertilizer buy a "market garden" brand; it costs more per ton—but less for actual plant food! In addition to this, get nitrate of soda, muriate or sulphate of potash, and fine ground and coarse ground bone. A small amount of Peruvian guano, dried blood, or a high grade tankage should also be procured. Low priced fertilizers are expensive. Get lime or humus, or both, if your soil needs them.

10. *Irrigation.* Last but by no means least, get in touch with the makers of the modern irrigation supplies. You can make no other garden investment which will yield such sure and big returns as a modern overhead watering system.

Don't Blame the Seedsman

TESTED SEEDS. Good seedsmen test their seeds; so do good gardeners. There is no test like your own. To get quick results, cut out some squares of blotting paper; lay them on a flat half full of wet sand; and on each count out and place the number of seeds you want to test. Keep in a warm place and cover the flat with a pane of glass. Most varieties will germinate in a few days if they have life. A better way, however, is to test them in soil. Plant them in rows in shallow flats prepared like those for starting seeds. All your seed should be tested, although you are sure that some of it is good, so that you will know how thickly to sow it when you plant, and besides you won't then unnecessarily blame the seedsman for errors he didn't commit!

Cucumbers, tomatoes and other vegetables started last month for forcing should be grown on rapidly now, repotting as necessary. If there is no hot section in the house, give the warmest corner available to them.

Hotbeds Next

IF YOU are to get your spring things started promptly, and have no greenhouse, attend at once to getting your hotbeds started. Get the new frame ready or overhaul the old. Get fresh horse manure. Stack it in a square heap, preferably under cover. Add leaves or fine straw if it is clear manure. Restack, "inside out," every few days, when the smoke begins to rise, for three or four times. As soon as the manure is ready for the bed place in the frame twelve to thirty inches deep, and pack down tight, with four to six inches of soil replaced on top of the manure. One cord of manure will be enough for five to seven sashes, according to the depth used. You can make a new hotbed now by building it *on top* of the manure, a cord doing for three sashes. Overhaul and repair sash. If you have not a greenhouse get some of the *double* glass sash for the earliest and tenderest things especially.

Flats. For growing plants, in handling pots, etc., you will need plenty of "flats." Make more now. Saw up cracker boxes, preferably all one size, into three-inch sections. Do not have the bottoms quite tight; drainage is necessary.

Plant Supports. Again—don't further delay getting your supply of pea brush, bean poles, tomato supports and other things of this kind that you will need. Put this on your list to be done by the fifteenth, at the latest.

BEFORE THE END OF THE MONTH

Coldframes. Get your coldframes and sash into shape at once to take care of the plants which will be soon overcrowding the hotbeds and seeking for more space. Old sash frames, or wooden frames of the same size, may be covered with "protecting cloth" to take the place of glass sash over cabbage and other hardy plants which are to be "hardened off." Patch up the old frames or make up new ones so that you will have plenty of room.

Planting. The earliest seeds (see above) may be planted as soon as the hotbed is ready, usually about the middle of the month or even before. A thermometer put into the soil should show a temperature receding to 80 degrees or so before planting or sowing seeds.

Pruning. Delay is getting dangerous. Finish up at once your pruning of fruit trees and ornamental trees (not shrubs) that may have been damaged by the winter. Maples and other things which start very early should be attended to first; otherwise, an early spring may start the sap before you get the job done. Pruning is very difficult work; if you are not familiar with it, study directions for the different types of trees and conditions carefully before you begin. Paint all large wounds as soon as dry.

Spraying. Follow pruning at once with a last winter or dormant spray, either lime-sulphur or miscible oil preparations should be used. If you have not used it early in the fall, try lime-sulphur; it has a fungicidal effect as well as being an insecticide. Spray thoroughly; otherwise save your time and trouble and go fishing through the ice—it is fine sport and will do your trees just as much good. If you use oil, try to get it on a few days before a rain is likely to occur.

Chicken House. This is a good time to have a good general thorough house cleaning, whitewashing, etc., to have perfect sanitation for the spring arrivals. And why not get a few real pedigreed chicks this spring? A dozen such will shell out more eggs than three dozen scrubs. The record hen has just laid 312 eggs in 365 days—*how many of yours would it take to equal her?*

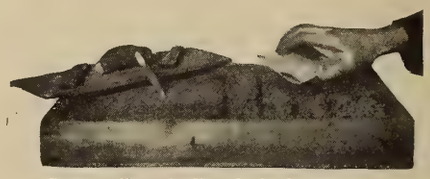
Ice. Take a look at the house to see that there is still plenty of sawdust or other packing over the top layers, if they have settled considerably since filling.

Tools. Once again—a word to the dilatory is sufficient, if they are wise! (P. S.—We shall not remind you of this many times more!)

Get Ahead in the Greenhouse

MORE ROOM. As the season for potting up and transplanting comes on, every available foot of space in the greenhouse will be required. In fact, temporarily it may have to be overcrowded. There are iron fittings made especially to clamp to side posts and centre posts, or to extend from sash bars, to hold temporary shelves. Get these, and your boards to fit them, ready in advance. The most promising plants may be ruined within a few days by having to be put in an unsuitable place after transplanting.

Section through a "flat" showing how drainage is provided, depth of soil, etc.



Sow small seeds directly in furrows

Pin-Money Crops for the Home Gardener—By F. F. Rockwell

II. Baiting the Dollar Trap With Onions

[EDITOR'S NOTE.—*This is the second article in a series on "Pin-Money Crops." Last month the possibilities of and limitations to raising a paying crop as a side issue on the home plot were discussed in a general way. In this article the author (who has done very successfully what he tells about) takes up one crop in detail, and again lays emphasis on the limitations and the necessity of studying the special local conditions. Next month's article will be directed particularly to the not inconsiderable number of people who feel that an affection for garden flowers and some success as an amateur cultivator should open up a channel of profitable money returns.*]

THE chances are ten to one that nine tenths of the onions sold in your town are grown hundreds of miles away! And do you realize that onions are, of all vegetables, the most suited to produce big profits under intensive cultivation in your garden?

"Easy money!" you say? But it isn't; and if you've ever spent more than fifteen minutes at a time on your knees a-straddle an onion-row, separating the strangling weeds from the struggling seedlings, you'll know why! All the same, onions offer bigger possibilities of profit than anything else in the garden. Good crops bring returns of from four hundred to one thousand dollars an acre—in exceptional cases, *profits* have been as high as one thousand an acre! However, don't stop now to figure out how many hundred dollars' worth you can grow. But if you are in earnest about making a reasonable amount of pin money in return for a reasonable amount of reasonably hard work this summer, consider these facts:

More dollars' worth of onions than of anything else can be produced on a given small area; the character of the crop is such that the smaller the area, the larger the crop is likely to be, in proportion; almost everywhere there is a large local demand for good onions; they are not perishable, and may be marketed over a period of several months; they are well adapted for *selling at retail*, for the highest price; hand labor being the chief factor of production, the big grower has little advantage over the small one; and the prices you can get, even if you sell to your local market (instead of at retail) will be from ten to fifty cents a

Onion "prickers" or seedlings ready for setting out, both before and after trimming

bushel more than the big growers get. Moreover, the insects and diseases troubling the crop are such that the small, isolated patch is comparatively free from them, with the exception of the universal "onion maggot."

TRANSPLANTING FOR BIG ROOTS

The greatest yield and the best prices can be had by growing the large, mild so-called "Spanish" onions. These may be grown in your own back yard to just as gigantic a size and of as good a flavor as in either Texas or Bermuda. Planted in the garden in the ordinary way, they will not get much larger than the average varieties. To reach the maximum size, they require a *very much longer season;* wherefore, they must be started early and transplanted or set out in the garden as you would lettuce or early beets.

This transplanting may seem like a great deal of extra work, but, in reality, is little more than that involved in the tedious process of "first weeding" of onions grown in the ordinary way. In fact, I would much rather set out a row of onion seedlings than weed a row of the same length in which the weeds were thick. Transplanting practically does away with the first weeding, because the transplanted onions are so far ahead of the weeds, and evenly spaced, that they can practically be taken care of with the small onion hoe or wheelhoe with very little hand work. The crop grown under this method will be ready earlier, is more easily prepared for sale, and will command better prices than that grown in the ordinary way.

THE VARIETIES ARE IMPORTANT

Select varieties of the right type. For all-round purposes, I know of none better than Gigantic Gibraltar; although for the first attempt, I should use about one half Prizetaker. These do not grow quite as large as Gibraltar but are more easy to mature and are better keepers. Ailsa Craig is a popular exhibition sort, being of a pale straw color and of a very handsome appearance. For exhibition purposes (which is one good way of advertising your wares), plant also a packet each of large Red Wethersfield and Silver King.

For garden culture from seed I recommend Prizetaker or some good strain of Southport Yellow Globe, or of Danvers, which mature earlier, for use in the more northern states.

AN EARLY START

Four fifths of the success of the transplanting method will depend upon the growing of strong, well hardened seedlings. For this, an early start, regular daily attention, and a suitable place in which to grow them are necessary, a coldframe will do, but better and earlier results can be had with a hotbed or small greenhouse. The onion grows slowly during its early stage, and plants started in February or March will be none too large to set out in April or May, according to the season.

There are two methods of growing them; they may be sown quite thickly, and then transplanted (as soon as they are large enough), into individual small pots or paper bands, or into flats, an inch and a half apart each way. Handling them thus individually means more work, but the average size of the resulting bulbs will be considerably increased. Try at least a hundred or so this way, to compare results, as a basis for your next season's operations. The other method is to sow the seed very thinly and, after they are up well, thin out, leaving four or five to the inch. Those pulled out may be pricked off into blank spaces in the rows. This will give about three hundred plants to an ordinary cracker-box "flat." Transplanting will give a hundred to a hundred and fifty plants; and small pots or paper bands about half that number in the same space. In planting out, the seedlings are set about three inches apart—four hundred plants to one hundred feet of row. The rows are twelve to fifteen inches apart. If they are to be transplanted before being set in the open, start two or three weeks earlier than otherwise.

SOWING THE SEEDS

Sow the seeds in clean, light soil, with no manure or fertilizer. When they are to be left in the original flats until transplanted, the flats should be three to four inches deep. Put a layer of very rich compost in the bottom, and on the top of this another layer of rich, light soil, each layer being about one and one-half inches deep. Over this, on the surface, put one-half inch of clean sand in which to sow the seeds, covering the seed about a quarter of an inch. The advantage of having sand on the surface is that there is then much less danger of "damping off."

For transplanting, use a mixture of good compost and good, clean soil. A temperature of fifty to sixty at night will start the seed promptly, and great care must be taken not to let the flats dry out while the seed is germinating. It is best to keep the flats covered with a piece of glass or a piece of newspaper, which does not fit tight, until the little seedlings begin to push above the soil.

THE SECOND STAGE

After the seedlings are safely up and thinned out or transplanted, they need no attention beyond plenty of water and plenty of fresh air until it is time to harden off. Then move them from greenhouse or hotbed and leave uncovered at first during the day, then both day and night for a week or two before planting outdoors; even if a light frost occur, it will not hurt. Where conditions are favorable and a strong growth has been made, they will require cutting back once or twice, and again at transplanting time, to keep them from getting top-heavy and tangled into each other. At moving time, take off a third or so of the top. Be careful not to let the plants "dry out" while they are hardening off in the frames. A thorough watering once a day, except in rainy weather, will be required.

THE PROFITS LIE IN THE BED

With no crop is the preparation of an extremely rich and finely prepared seed bed more important than with onions. If manure is used directly before planting, have it very old and fine. Keep fertilizers, ashes and so forth very near the surface, applying them after the ground has been plowed and roughly worked over, but before putting on the "finishing touches." Work the bed over by hand, with a

Here is a lot of prize winning onions grown on light soil where modern irrigation methods were in use

These onions are the same kind, same seed, same garden as those shown oposite. But they did not get sufficient water

smooth fine-toothed iron rake, until perfectly smooth and level. This applies whether they are to be sown from seed or transplanted.

TRANSPLANTING SEEDLINGS

Seedlings are very easy to transplant if the following precautions are observed. Trim back the tops about a third or so, unless they have been recently cut back, so that the little plants will be short and stiff enough to handle readily; there is little danger of overdoing this. Trim back the roots a half or two thirds, so that they will stick out rather stiffly like the bristles of a small brush. Have the ground freshly prepared, ready for planting. As the holes made for the little plants are small, the surface of the soil will crumble into them if the soil is dry, and greatly inconvenience the job of planting, besides getting around the roots, which is just what is not wanted.

The onions may be taken to the garden in the flats in which they have been growing; or, if they have to be taken some distance, cut and trim and pack quite closely into flats, without separating them, as the roots will be more or less tangled together. When planting, separate a few at a time and keep the others shaded from wind or sun.

In setting the plants, be careful not to get them too deep: half an inch to an inch in the soil above the point where the roots join the stem will be ample. Be very careful not to push them down into the ground, thus turning the ends of the roots upward. Each plant should be well firmed into the soil with the fingers. If irrigation is available, give them a good watering directly after setting, unless it is wet weather.

Be sure to get the rows perfectly straight as this will make a great difference in the job of cultivating. Put two narrow cultivator teeth on the wheel hoe, spacing them twelve inches apart, with which to mark out the rows. For larger areas you can readily make a marker by driving six-inch spikes twelve to fourteen inches apart in a piece of pine "two-by-three," and attaching a suitable handle. These details are mentioned because it is essential for this job to have a marker with small teeth that will sink an inch or two into the soil. This will loosen the soil along the planting line, which greatly facilitates the task of plant setting. Until you get used to the work it will be well to cross-mark the rows, to guide you in getting the plants in about the right distance apart—four to the foot. After transplanting, the soil will have been more or less tramped down and made uneven; go over it *at once* with the wheel hoe to loosen it up, and again with the rake or weeder attachment to level and pulverize the soil between the rows. Don't delay this task until the soil gets hard or a rain has made the ground wet. Do it immediately after planting. A delay of twelve hours may make a great deal of extra trouble.

SOWING IN THE OPEN GARDEN

Unless you have had some experience with the transplanting methods and are sure that you have the facilities for starting the necessary number of plants and can get extra help to assist in setting them out, it would be well not to put all your onion ground into transplants the first season.

Just before planting the seed, an iron hand rake should be used to get a *fresh* surface, clean and smooth, to plant on. This is important. One pound of seed will plant from a quarter to a fifth of an acre. You will get more profit out of an eighth of an acre well cared for than from a quarter of an acre indifferently tended—in growing onions remember that, first, last and all the time.

From ten to fourteen days after planting, rake again over the whole surface evenly with an iron rake. This will save a great deal of hand work later on. Do this after the seeds have sprouted, but before the shoots are near enough the surface to be broken off. This second raking, which can be done with very little effort, serves the double purpose of destroying thousands of sprouting weed seeds and of leaving the soil in the very best condition for the tiny arches of the little onions to break through.

Always sow onion seed just as early as it is possible to get the ground into condition. In case very cold weather follows it may be more than two weeks before the seeds will be well sprouted. Give this preliminary raking as late as possible without danger of injuring the tiny sprouts.

It is a good plan to plant a few radish seeds along with the onions; they serve both to mark the rows before the onions are up, and to act as catch plants for the onion maggot fly, considerably reducing the possible injury from this source. In localities where the onion maggots are likely to give trouble, always sow the seed more thickly than otherwise, to allow for the loss of some plants. Details of summer culture will be given in due season.

Staking Growing Plants

F. L. WRIGHT, New York

IT SEEMS a simple matter to stake and tie a plant, but there are right and wrong ways of doing it, and only too often the wrong methods are the ones followed.

Among the most common errors are, first, putting a string round a bushy specimen, and tying it up as one would a shock of corn. This spoils all grace in the plant's habit, crowds the stems to the injury of each, prevents the sun, air, and light from penetrating to the centre, which consequently becomes filled with dead leaves—in wet weather a mouldy, rotting mass.

Secondly, the tying of stems tightly to stakes. This checks the flow of sap and, with growing perennials, prevents the stem rising, and so causes buckling and crippling, which in the case of very rapidly growing stems, as shoots from Rambler Roses, may cause the loss of the stem through snapping.

A third error is the use of rough stakes with knots, ends of branches, or other roughnesses, which in like manner catch and hold the tying material, and prevent the rising of the shoot, with similar results.

In correctly staking plants the natural habit of the subject should be taken into account. A plant like a tall, branching Michaelmas Daisy or a Delphinium is best served with a stake to each stem, spreading them out in such a way as to get an evenly balanced result; each stem can then develop on its own lines, and the centres of the plants are not crowded. With subjects like perennial Phlox, one stake in the centre will normally suffice, and the various stems can be looped thereto, singly or perhaps in a series of two or three. Early Chrysanthemums also need but to be looped to a central stake to prevent undue windwaving. Strong subjects like Hollyhocks and Sunflowers must have correspondingly strong stakes, preferably one to each if in a windy position; otherwise, a certain amount of looping is admissible. In staking Lilies see that the stakes are sufficiently far away to avoid piercing the bulb.

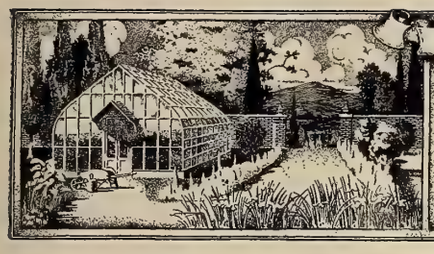
In the matter of tying if the stems are not likely to lengthen much, as in the lower ties for Chrysanthemums, the raffia, or cord, should be first tied tightly in position round the stake, and then the shoot enclosed in the loop. If another shoot lies outside the first the raffia should be half tied to hold the first in position, and then a second loop made to take in the second shoot.

With single growing stems a simple loop enclosing stake and stem in its embrace is alone needed; the leaves on the stem will prevent the tie slipping down, while its looseness will allow of its rising freely as the stem lengthens. Stakes should be sharply pointed; if painted green they are inconspicuous. Bamboo stakes are very useful, being smooth, light, and not quickly rotted; any size can be got to suit all purposes from a seedstore. For light plants, as Carnations, Pyrethrums, wire stakes can be procured. A better method is to buy heavy wire by the pound and cut stakes to any required length.

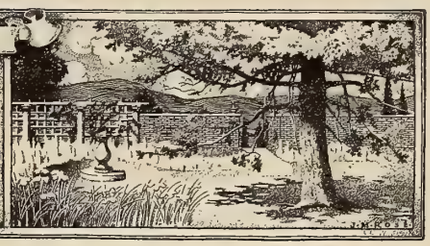
Compare these onions with the poorer ones opposite. See what a difference an abundant supply of water makes

Three leading varieties: Prizetaker, Danvers and Red Wethersfield, showing relative size and shape

Seedlings in the bench with transplant raised bulbs of previous season



ODDS AND ENDS
FROM EVERYWHERE



Clearing By Dynamite

CLEARING of stumps from a field is of more importance than the average individual thinks, for the cost of tillage and cultivation must be reduced in order to secure from the land maximum profits. And until the stumps are removed from the field, cultivators, discs, planters, etc., cannot be used. Every method of stump removal possibly has its own particular advantages, but by actual experience covering a period of several years I have been unable to find but one method that gives satisfaction under all circumstances, and that is blasting with dynamite. A few years ago I bought a small tract of land on which were many large stumps. I immediately ordered a supply of dynamite and used it, getting out all the stumps without any trouble. Increased production over and around these places told the tale of where the stumps were. To obtain the best results one should be equipped with the proper tools. Right here is where a great many people fail in trying to blast out stumps. Get a one and one half inch auger (which may be obtained from any hardware dealer), take it to a blacksmith and have him weld to it a one-half inch rod about three feet long. This now gives an auger about four and one half feet long.

The only other tool necessary is a cap crimper; include this in your order for the dynamite. Use nothing weaker than a No. 6 cap and be sure to specify waterproof fuse, if any of the work is to be done in wet places. The dynamite comes usually in half-pound sticks; the amount to use can be regulated after a little practice.

Tennessee. A. H. HARRIS.

Why Tulips "Break"

IN AN article in THE GARDEN MAGAZINE for October, 1915, a question is asked by E. S. Johnson, Pennsylvania: "Why do Tulips Break?"

So far as I can learn, this is one of the unexplained riddles of nature. In this habit of "breaking" the Tulip is unique among flowers. Last winter, in preparing a paper to be read before a small Garden Club, I had occasion to consult a number of authorities in regard to the life history of the Tulip and possibly I can throw a little light upon the freakish conduct of those Tulips.

"The Tulip bulb is made up of layers or sheathes, like an onion. There are five of these layers, and at the heart lies the tiny rudimentary flower, already showing its separate parts. On the base, between the flower bud and the first sheath, may be seen a tiny bud. This is the nucleus from which the new bulb is formed, that later shall take the place of the old one whose substance has gone to feed the growing plant. Sometimes there are two buds at the base of the bulb, in which case there are two new bulbs formed, and a consequent increase of stock next fall, either of full sized bulbs or offsets. The renewed bulb and any offsets will produce flowers that are identical in shape and habit, *color* and *markings* with the parent bulb, after the latter have become fixed. To that extent the Tulip is perpetual, and varieties are now in cultivation that possess a recorded history of more than a century.

"In these markings of the Tulip its greatest mystery resides, and also one of its greatest fascinations. As with other flowers, new varieties of Tulips can be raised only from seed, and curiously enough, when the seedlings come to bloom, the flowers are always self colored, rose, brown, yellow or purple, without pronounced lines or splashes of different color. In this state they renew themselves year after year, as described above, the new bulb always resembling its parent. Then suddenly, it may be in two or three years, it may not be for twenty, there appears a flower of changed character. The color has drawn together in splashes or lines, or in a band along the edge of the petals; the marked or "broken" flower as it is called, has appeared, and henceforth this particular bulb and its offspring will wear the new dress, without further change. Gradually the other bulbs that may exist from the same original stock of seedlings, and are still in the self-colored or 'breeder' stage, will also break in like fashion, but with this characteristic, that the original seedling seems to imprint its individuality on all its descendants, so that through all the years of transformation, there will be but one type of breeder, and but one type of broken flower. That is, if the original seedling developed a dull yellow flower, dull yellow will all its descendants be until the 'break' occurs, and after that has taken place there will be but one type of marked or broken flower for that particular race."

Think of gathering ripe strawberries in the garden on October 23d! And berries as large and of as good flavor as those gathered in summer

I do not know whether Clara Butt, Caledonia, La Merveille and others are simply *named seedlings* which have not yet changed to their permanent character, or not, but if that be the case, would not the above be an explanation of their puzzling behavior?

Lewiston, Me. CARRIE E. WEST.

[The Darwin Tulips, to which Clara Butt belongs, are strictly speaking but "breeders," having some influence of Tulipa Gesneriana in their makeup—several so-called Darwins do not properly belong, indeed no shade of yellow, bronze or buff can be seen in a true Darwin. La Merveille is a "cottage" Tulip, a relic of the old Tulip mania days. Nobody can unravel the histories of these old-timers.—ED.]

Fall-Bearing Strawberries

THE YEAR 1915 will ever be remembered by me for then it was that I first tried out fall-bearing strawberries. I had been somewhat skeptical as to their merits, notwithstanding published reports. Then a friend told me of seeing a bed of them fruiting in November. That settled it! Last spring I noted that my favorite berry-plant grower listed several fall-bearing strawberries and, although I had but a corner in a city backyard to devote to them, I invested.

This batch had been planted but about a month when I acquired a "farm" in the country and so transplanted the strawberries there. In spite of this unusual method of replanting strawberries the middle of June, the vines continued their growth, made a profusion of blossoms, and in July we started to pick the berries!

The quality was superb, indeed. Not a day from then till the early part of November when ripe fruit might not have been gathered. The blossoms were produced in such profusion that we often wondered where the plants acquired such vitality, and the fruit ripened promptly. The flavor was excellent even before the berry was fully colored.

The particular variety I am writing of is the Superb, but I understand the other kinds have commendable qualities. [We have had excellent results from at least two other varieties, picking fruit into December.—Ed.] With the nurseryman who sold me the plants I might say, "It is as sure to bear all summer and fall as Senator Dunlap is to bear in June. Fruit is large, handsome, dark red, glossy, of perfect shape, quite firm and in quality unsurpassed." Plants set out in the spring will produce 1,000 quarts per acre during the fall.

The photograph was taken October 23, 1915, and the berries shown were fully as of good quality as those picked in early June.

Michigan. U. R. PERRINE.

Another Experience With Root Lice on Asters

IN RECENT issues of THE GARDEN MAGAZINE I have noticed correspondence from your readers regarding the root lice on Asters, and while I cannot furnish any authoritative information as to where they come from, my experience in checking them may be of interest to others.

I have grown beds of different varieties of Asters in my garden for some years with pleasing results. I never plant Asters in the same place two years in succession but select each year a different location. The seeds are sown and started in the coldframe, and when the plants are to be set out in their permanent location I have the roots of each thoroughly dusted with tobacco dust before planting. This treatment seems to discourage the aphis; but if a plant shows signs of the lice later on, by drooping or showing yellow leaves, I remove some soil around the plant and water freely with a decoction of tobacco water, obtained by steeping tobacco stems until the liquid is the color of moderately weak tea, and being careful that enough liquid is supplied the plant to reach the roots. I have had little trouble with this pest after such treatment. When the aster-beetle appeared last summer I sprayed the plants, even when in flower, with Pyrox (one pound to six gallons of water); the beetles did not reappear.

Worcester, Mass. CHARLES H. WARREN.

The Rhododendron Lace Bug

RHODODENDRONS have recently become afflicted by an insect anywhere on the Atlantic seaboard from North Carolina to Massachusetts and west to Ohio. Such plants are apt to be infested with the Rhododendron lace bug, an almost microscopical insect which lives on the undersides of the leaves, sucking the sap from them. Leaves so infested have a whitish, spotted appearance on the upper side, while below there are frequently dark, brownish-black spots which look like scale insects, but which really are exudations from the leaf.

One thorough spraying with soap—one pound to ten gallons of water—being sure to hit the under sides of the leaves in particular, will usually eradicate this pest. Sometimes, however, it is necessary to make a second spraying Do not spray while the sun is shining on them.

Penna. HAROLD CLARKE.

GARDENING FOR YOUNG FOLKS

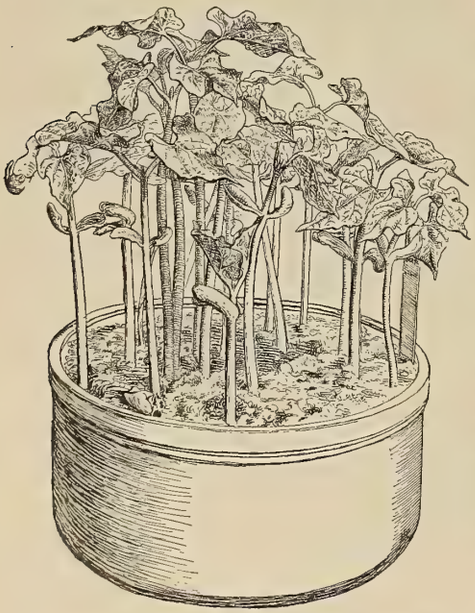
CONDUCTED BY ELLEN EDDY SHAW

Murder Will Out

YOU have heard probably of that case of strangling in my neighbors' back yard? It was horrible! It didn't take Sherlock Holmes to find out the reason of the wholesale slaughter, for it involved not the death of one only but of many. It happened this way. Listen!

My neighbor and I bought our flower seeds just as usual last spring, and planted them too. My little plants poked their heads up through the mellow earth and greeted gaily the first warm seasonal days. But over in my neighbor's yard there was dark trouble.

The earth was hard and packed and finally little weak plants struggled in the ground. But they came up here and there in a discouraged way; and in some spots nothing at all appeared. We discussed it over the back fence until one evening an old Scotch gardener, happening by, said "You've strangled them to death." And that's the truth. They were strangled by the tightly packed earth through



1. Seeds must have air, heat and water to start growing. These beans were planted in a porous soil and started when others (Fig. 2) in hard clay did not

which the young plantlets, born after the fashion we discussed last month, were unable to push through. And then, too, there is always a great lack of air in tightly packed soil.

Here is a bean seed. Break it open and see the embryo plant inside. The seed is made up of cells of protoplasm lying dormant until the conditions of water, heat and supply of oxygen are right; then the protoplasm lies no longer torpid but starts life and work. Just take a few dry bean seeds, place them between two moist blotters, supply a little heat, too, and the seed starts into activity. The three essentials have been supplied.

Again, seeds absorb water at a rate controlled by the water content of the medium. To illustrate this, let us suppose that seeds are placed in dry sand, in slightly moist soil and in soil with considerable moisture in it. The seeds in the last medium (wet soil) will swell more quickly; this is the first step in germination. Place these same seeds in water and they swell even more quickly.

Again there may be plenty of water in the soil but the seed germinates slowly. How could this be? Take two flower pots of moist soil, place seeds in each; in the first press the soil firmly over the seeds; in the second lay the soil loosely over the seeds. Of course the seeds in the first pot germinate more quickly. Why? This is very simple: the seeds have been brought into close contact with the moist soil and very quickly absorb water.

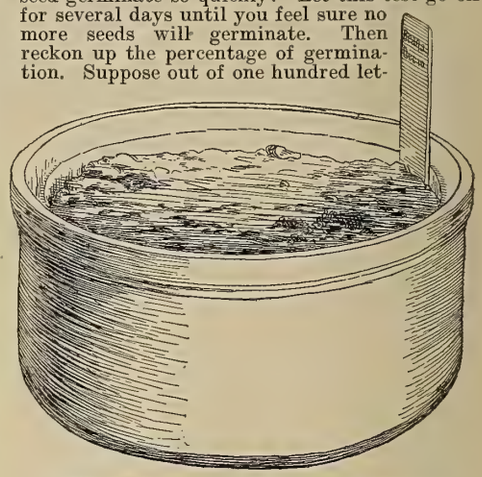
This, again, has a direct bearing on planting. You see the gardener plant the seed in drills and then firm the soil over them. He does it to hasten germination. Another point is brought out if we plant seeds in two jars of moist soil and place one in the ice box, the other in a warm room. The seeds in both cases have been pressed into the moist earth. But the seeds in the jar placed in the warm room start before those placed in the refrigerator. This shows the effect of temperature on germination. Did you ever plant a garden and then for several days have the weather cold? Little happened in the seed's great life process during that spell of weather, but with a few warm days the work of germination started. So we do not start gardens in wet, cold weather but wait for warm days.

There is a third requisite for germination; a supply of oxygen. To prove that oxygen is necessary for germination, oxygen must be cut off. How can that be done and how is it done in nature? Take a saucer of moist sand and plant some seeds in it, placing sand over the seeds. Take another saucer of heavy clay soil thoroughly wet, and place seeds in this. Cover over both vessels with glasses and place in a warm spot. The seeds planted in the sand germinate first; in fact, the other seeds may refuse to germinate at all. This proves that a certain amount of oxygen is necessary for germination. The heavy compacted soil has forced the oxygen out from between the soil particles.

See now the reason why seeds planted in heavy, clayey soils refuse to germinate?

Summing this all up: for the process of germination heat, moisture and oxygen are needed. So do not plant seeds before the soil is warm. There must be a certain amount of moisture in the soil to hasten germination; and to bring the seeds in contact with the moisture press the soil about the seeds. Too much water in the soil holds back germination, for the soil becomes heavy and oxygen is shut out. This applies equally to over watering seeds after planting, thus choking off the normal supply of oxygen. Remember, too, that when seeds are planted very deep, they again do not find sufficient oxygen.

Do not for a moment think that every seed in the world when placed under favorable conditions of heat, moisture and oxygen supply is bound to germinate. It is not. Other things enter into the process, natural things like old age or defective starts. By this I mean that seeds may be gathered before they are mature, or they may have been frozen, too dry, too damp—just think of the things that might enter into a seed's life. You cannot tell by the outward appearance of a seed what its internal worth is. Because of this people test seeds to see if they are worth planting. It is a simple, an interesting process. Take a saucer and line it with a piece of white blotter, or a circular piece of Canton flannel. Moisten and place the seeds on this. Over the seeds a second piece of moistened blotter or flannel should be spread, and finally place a piece of glass over it all, otherwise the evaporation from the surface covering is rapid. Count out either fifty large seed or one hundred if small ones are being tested. Corn, beans and peas are of the first class; lettuce, radish, etc., are small seeds. Different seeds, of course, germinate at different rates. Lettuce seed germinate so quickly! Let this test go on for several days until you feel sure no more seeds will germinate. Then reckon up the percentage of germination. Suppose out of one hundred let-

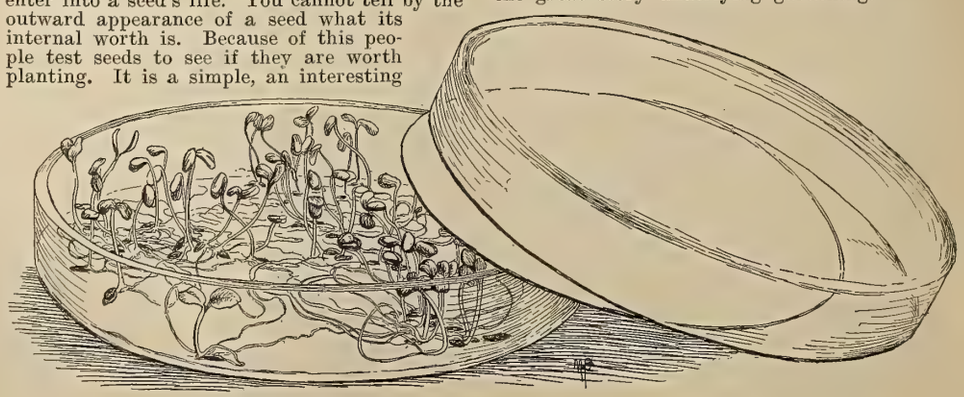


2. This was sown with beans on the same day as those shown in Fig. 1—but the soil was a heavy, wet clay, admitting no air

tuce seed eighty germinated. Then the per cent. of germination is eighty. Use that seed, it is good. Seed ought to be seventy per cent. good to use at all. Another interesting side to this test is that of time: I mean you can tell how long in days it takes one kind of seed to germinate; how many days must be allowed for the germination of another kind of seed. Again these tests are not just things to do, they are things to apply. In this way step by step the fundamentals of gardening may be built up. A far different attitude is felt toward a subject one understands. Gardening is applied botany; but it is rarely, consciously, at least, applied.

All those conditions which directly affect the start of the seed may be applied right to the process of gardening; so that germination which has seemed to be a sort of technical subject or a silly fussing over beans and peas and corn seed after all is the backbone of everyday garden work.

Each month we shall take up a portion of the great story underlying gardening.



Don't blame the seed if you get no young plants unless you have made a vitality test with damp blotting paper or cloth

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What is an Internal Bath?

By R. W. BEAL

MUCH has been said and volumes have been written describing at length the many kinds of baths civilized man has indulged in from time to time. Every possible resource of the human mind has been brought into play to fashion new methods of bathing, but, strange as it may seem, the most important, as well as the most beneficial of all baths, the "Internal Bath," has been given little thought. The reason for this is probably due to the fact that few people seem to realize the tremendous part that internal bathing plays in the acquiring and maintaining of health.

If you were to ask a dozen people to define an internal bath, you would have as many different definitions, and the probability is that not one of them would be correct. To avoid any misconception as to what constitutes an internal bath, let it be said that a hot water enema is no more an internal bath than a bill of fare is a dinner.

If it were possible and agreeable to take the great mass of thinking people to witness an average post-mortem, the sights they would see and the things they would learn would prove of such lasting benefit and impress them so profoundly that further argument in favor of internal bathing would be unnecessary to convince them. Unfortunately, however, it is not possible to do this, profitable as such an experience would doubtless prove to be. There is, then, only one other way to get this information into their hands, and that is by acquainting them with such knowledge as will enable them to appreciate the value of this long-sought-for, health-producing necessity.

Few people realize what a very little thing is necessary sometimes to improve their physical condition. Also, they have almost no conception of how a little carelessness, indifference or neglect can be the fundamental cause of the most virulent disease. For instance, that universal disorder from which almost all humanity is suffering, known as "constipation," "auto-intoxication," "auto-infection," and a multitude of other terms, is not only curable but preventable through the consistent practice of internal bathing.

How many people realize that normal functioning of the bowels and a clean intestinal tract make it impossible to become sick? "Man of to-day is only fifty per cent. efficient." Reduced to simple English, this means that most men are trying to do a man's portion of work on half a man's power. This applies equally to women.

That it is impossible to continue to do this indefinitely must be apparent to all. Nature never intended the delicate human organism to be operated on a hundred per cent. overload. A machine could not stand this and not break down and the body certainly cannot do more than a machine.

How many people can you name, including yourself, who are physically vigorous, healthy and strong? The number is appallingly small.

It is not a complex matter to keep in condition, but it takes a little time, and in these strenuous days people have time to do everything else necessary for the attainment of happiness but the most essential thing of all—that of giving their bodies their proper care.

Would you believe that five to ten minutes of time devoted to systematic internal bathing can make you healthy and maintain your physical efficiency indefinitely? Granting that such a simple procedure as this will do what is claimed for it, is it not worth while to learn more about that which will accomplish this?

People don't seem to realize, strange to say, how important it is to keep the body free from accumulated body-waste (poisons). Their doing so would prevent the absorption into the blood of the poisonous excretions of the body, and health would be the inevitable result.

If you would keep your blood pure, your heart normal, your eyes clear, your complexion clean, your mind keen, your blood pressure normal, your nerves relaxed, and be able to enjoy the vigor of youth in your declining years, practice internal bathing and begin to-day.

Now that your attention has been called to the importance of internal bathing, it may be that a number of questions will suggest themselves to your mind. You will probably want to know WHAT an Internal Bath is, WHY people should take them, and the WAY to take them. These and countless other questions are all answered in a booklet entitled "THE WHAT, THE WHY and THE WAY OF INTERNAL BATHING," written by Dr. Chas. A. Tyrrell, the inventor of the "J. B. L. Cascade," whose life-long study and research along this line make him the pre-eminent authority on this subject. Not only has internal bathing saved and prolonged Dr. Tyrrell's own life, but the lives of a multitude of hopeless individuals have been equally spared and prolonged. No book has ever been written containing such a vast amount of practical information to the business man, the worker, and the housewife; all that is necessary to secure this book is to write to Dr. Chas. A. Tyrrell at 134 West 65th Street, New York City, and mention having read this article in THE GARDEN MAGAZINE, and same will be immediately mailed to you free of all cost or obligation.

Perhaps you realize now, more than ever, the truth of these statements, and if the reading of this article will result in a proper appreciation on your part of the value of internal bathing, it will have served its purpose. What you will want to do now is to avail yourself of the opportunity for learning more about the subject, and your writing for this book will give you that information. Do not put off doing this, but *send for the book now* while the matter is fresh in your mind.

"Procrastination is the thief of time." A thief is one who steals something. Don't allow procrastination to cheat you out of your opportunity to get this valuable information which is free for the asking. If you would be natural, be healthy. It is unnatural to be sick. Why be unnatural, when it is such a simple thing to be well? —*Advertisement.*

Sweet Smelling Lavender

IF YOU have a garden or are to have one, do not overlook the planting of some Lavender. It will prove the most delightful bond between you and your garden that you can possibly have and will afford you more real pleasure than any plant you possess.

Lavender needs a sunny spot, a light soil and moderate watering during the bud and blossom time. Quickest results are obtained from young roots which nurseries sell for about twenty-five cents each, the narrow-leafed variety bearing the finest flowers. Roots will stand transplanting at any season but, if possible, set out in late spring or early fall. Place at least six feet apart, well back from the walk, as the bush spreads. Being extremely hardy, it will require little attention provided the soil is loamy or of the nature of shale. The ground about it should be spaded several times a year, and a light dressing worked through it after the first rains. No pruning will be necessary as picking off the long-stemmed blossoms properly—at the starting joint—proves an equivalent.

It will grow unpretentiously at first, reminding you of the sturdy, unattractive Sage bush; but the second or third summer will find it sending forth countless sharp, flexible flower shoots that later burst into a charming canopy of softest violet.

In large grounds lavender can be massed in great beds with telling effect, or it can be set in hedges to advantage. One of the most strikingly picturesque gardens in California has its curving driveways lined with Lavender, the bushes being wonderfully showy at the height of their luxuriance.

When each Lavender bloom is at its brightest and best, the capsule below it is at its firmest and fullest and the flower spray ready to pick. Select with care the finest flowers, breaking each stem at the joint nearest the bush. Spread thick on a paper in some sunny, protected corner. Care should be taken not to let this drying out process last more than a few days, for after the seed is dry, the hot sun very quickly extracts its delicate tinting, leaving it dull and withered. Hold in your lap a coarse kitchen sieve and brush by hand the capsules into it. It is not a tedious task. A skillful twist of the stem as you gently hold in your palm the flowered end, and the capsules fall into the sieve. Shake the sieve and a light chaff falls through, leaving the lavender surprisingly clean and ready for use. Culling Lavender in this way is far more satisfactory than when it is pounded out in quantities and afterward subjected to an endless and discouraging cleaning.

To prevent mould your Lavender should remain uncovered in the house until all moisture has thoroughly evaporated, when it can be placed in jars until needed.

The tiny flower tips that fall off in the first drying, while neither marketable nor as spicy as the lavender proper, have enough perfume to render them worth saving separately.

Jars of Lavender have a decided commercial value as well as cured Lavender, free from dust and dirt, which sells for about twenty cents an ounce among druggists. Wholesale perfumers are eager to secure any choice grade from which to extract Lavender oil.

Calif. BESSIE FARWELL.

[EDITORS NOTE:—From the United States Department of Agriculture, we have received the following particulars regarding the commercial growth of Lavender in the eastern United States.

"Lavender appears to be very little grown for commercial purposes in this country, though we have reason to believe its culture as a home garden plant has greatly increased of late. It thrives best on rather dry, sandy loams containing fair proportions of humus and available plant food, and should do well in suitable localities in all Atlantic and Western States where the winter cold is not intense.

The chief difficulties lie in the propagation of the plants and the relatively low price of the products. Oil of lavender flowers is quoted at $2.50 to $3.50 the pound for best qualities, the indicated yields in our trials rarely being more than 15 pounds to the acre. The dried flowers are only worth wholesale from 8 to 15 cents the pound. Yields rarely exceed 250 pounds per acre. The true Lavender, Lavandula vera, is not easy to propagate from seeds, as they are usually

The Wonderful New Gladiolus

(Kunderdi Type)

With Frilled or Ruffled Petals

AN entirely new race with the most distinct characteristics of any. Of unusual size and vigor of plant and flowers. A recombination of the best of all other strains with certain species has resulted in the most beautiful of all Gladiolus. Not only those with ruffled petals, but also the most magnificent of plain-petaled varieties, such as "Mrs. Frank Pendleton," "Raja," "Ida Van," "Gov. Hanley," "Myrtle," "Giant White," "Mrs. W. E. Fryer," "Challenger," "Fire Robbon," and many others of the finest gladiolus grown today.

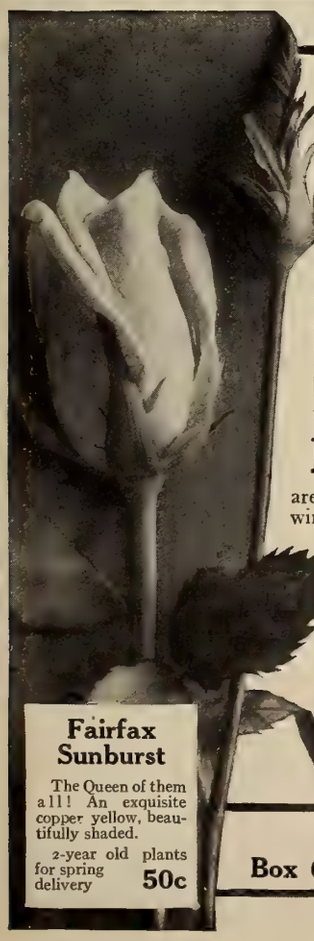
A magnificent new strain of Primulinus Hybrids (with both the ruffled and plain petals), has also been developed by us from the above race. These come in every conceivable shade of yellow, orange, saffron and pastel tints. Thousands of new varieties of most beautiful forms and colorings, to be found nowhere else in the world.

These are the only new races of gladiolus ever produced in the United States, the only really American strain and the most beautiful of all. The foremost horticulturists pronounce them "an epoch-making event in horticulture." Prof. Bailey has given them a prominent place in his New Encyclopedia of Horticulture, and Luther Burbank, "the plant wizard," says: "The Ruffled Gladiolus like the Ruffled Sweet Pea has a refined appearance which the common flat ones do not possess."

A lifetime has been devoted to the development of this wonderful gladiolus, and it shall be my constant endeavor to each succeeding year offer additional new varieties, equally distinct and beautiful, to meet the requirements of the most progressive and discriminating lovers of the gladiolus.

Our large, well illustrated catalog, giving a long list of our recent productions (many of them now offered for the first time) is free for the asking. Send for a copy even if you do not intend to order, as it contains the best of cultural notes and other valuable information. Address the originator,

A. E. KUNDERD *Originator* **Goshen, Ind.**



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2-year old plants for spring delivery **50c**

For YOUR Garden

Delicately nurtured roses, propagated in hot greenhouses, are not suitable for planting out-of-doors. Even if they do not die at the first touch of frost it will take them years to get acclimated so that they will bloom freely. What you want for your rose garden is plants that have been grown under conditions similar to what you can offer them.

Fairfax Roses

are propagated under natural conditions and wintered out-of-doors. They are hardy and vigorous, immune to frost and snow, and should thrive in YOUR garden as well as they do in ours. They will bloom luxuriantly the FIRST season—rich, rare blooms full of color and perfume—without special care or nursing.

1916 Rose Book Free

My new Rose Book tells you how to grow roses successfully and if you follow directions you can have a superb rose garden this summer. Write for a copy—it's free.

If you are having trouble with your roses that you do not understand write me about it and I will gladly advise you what to do.

W. R. GRAY

Box 6, Oakton, Fairfax County, Va.

DREER'S 1916 Garden Book

CONTAINS valuable informative articles written by experts in the various lines of gardening, and should be in the hands of every flower or vegetable grower, whether amateur or professional—whether he cultivates a small plot of ground, or acres of farm-land.

Dreer's 1916 Garden Book contains 288 pages, 4 color and 4 duotone plates, besides numberless photographic true-to-life reproductions. It lists all the standard varieties of flowers and vegetables, as well as the best of the season's novelties.

The newest Roses, the best Dahlias, and Dreer's Improved Hardy Perennials are given special prominence.

Mailed free to you if you mention this publication.

Dreer's Orchid-Flowered Sweet Peas—with immense wavy flowers in sprays of 3 and 4 blossoms each. Our mixture contains a full range of colors, 10 cents per packet, 20 cents per ounce, 60 cents per ¼ pound. Garden Book free with each order.

HENRY A. DREER
714-16 Chestnut St., Phila.

very slow and irregular in germination. The only practicable methods of increasing stocks are by cuttings and division of established clumps, which requires considerable time. The intelligent production of high-class flowers and oil promises well for cultivators not in a hurry for immediate profits. Spike lavender (L. spicata,) is far more readily grown from seeds, and requires similar general treatment, and is more productive, but its products are of little value. Spike lavender oil is now quoted from 60 cents to $1.10 per pound, and the dried flowers bring only the lowest prices.]

Shading Vegetables and Flowers

TWO summers ago a friend of mine in the city suburbs complained to me that it was difficult for him to have a home garden, owing to the injury done by neighboring chickens, cats and dogs. I thought for a while and decided that vegetables grown under a tent made of cheesecloth would be quite safe from these pests. That meant shading the plants, of course, and the results it might bring were problematical. I advised my friend to plant his garden, enclosing half of it under a tent made of a heavy grade of cheesecloth, leaving the other half to the mercy of the hens, etc. I decided to do the same; I had not had much experience with growing vegetables in the shade, but have usually considered that those which are produced without blossoms would be most satisfactory. This, of course, would be parsnips, carrots, potatoes, salsify, artichoke and celery. My friend, however, did not care much for any of these crops, and so we decided to plant different things and note the results.

The summer of the test was cool and wet, and the results secured were probably much less favorable than they would have been in a hotter, drier season. With beets and corn we got poor results. Cucumbers grew well in the tent, but no fruit set until late in the fall, when the tent became torn and a few insects were thus admitted. Watermelon and muskmelons were a failure. The vines grew well but the fruits were small. There was only a small crop of cucumbers and melons outside, owing to the unfavorable season. With lettuce the plants were two to four days later in maturing under the tent than outside. Tomatoes ripened six days earlier under cloth. The yield, however, was smaller than with the crop grown in the open. Beans, also, were ready for use three days earlier inside than out, and produced a somewhat greater weight of pods, but the proportion of ripe pods outside was much greater than in the tent. The best results we got were with radishes and cauliflower. The former were ready for use inside the tent fully three days before those outside, and were perfectly free from maggots, while those grown outside the tent were practically worthless from this cause. Cauliflower grown in the open was also badly attacked by the root maggot, while plants under the tent were perfectly healthy.

We became so interested in the experiment that the following summer we experimented with a number of vegetables under lath frames, the space between the laths being equal to the width of the lath so that the plants were really in half shade. Early planted lima beans were retarded by the shade, but those planted late in the summer, when the ground was hotter, germinated more quickly underneath the shade than outside. Shaded carrots produced more foliage and much smaller roots than outside ones. With lettuce, however, shaded plants of the second crop were much larger and better than unshaded ones, from which I should say that shading is of great benefit to midsummer lettuce. Swiss chard gave similar results, and in addition the injury from leaf blight was reduced. Celery grew to more than double the size of other plants of the same lot that were in full sun; but later in the season, with shorter days and less light, the exposed plants overtook and surpassed the shaded ones. Club root of turnips was apparently checked by shading. As with the vegetables grown under cheesecloth the shaded plants were unaffected by the first few frosts in the fall which killed the exposed plants.

With flowers grown in shade, I had had some previous experience. I knew that the shade from trees is nearly always accompanied by excessive exhaustion of the water and fertility in the soil.

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Choice Shrubs & Hardy Plants

With them you have a profusion of never-ending bloom and a wealth of foliage. You can obtain many pleasing effects — adorn barren places, open attractive vistas, conceal unsightly features, and lend beauty and harmony to the whole.

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Send for 76th Annual Catalog

It's a standard planting guide, a useful handbook and manual containing valuable cultural directions, indispensable to planters. Sent free on request.

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Book on Grape Culture—Free

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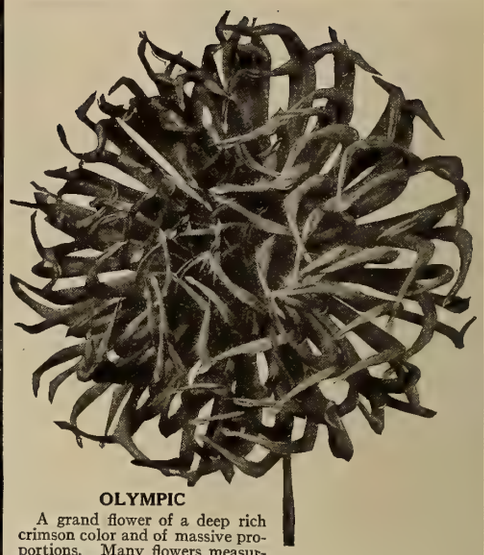

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All in field grown tubers. No plants sent out unless wanted.

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20, my choice, for $1.00
12 higher priced ones, $1.00
Large bulbs for $1.20

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Strawberries

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THIS is a Nursery with an experience of 44 years, an assortment of 2000 varieties and a stock of 500 acres. There is a care given here to each tree and shrub, and a fertility of soil provided, that makes sturdy, vigorous plants—the kind that look well and grow well.

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A tree that combines shapely habit of growth with the virtue of giving cooling shade and gorgeous flowers. The trees that we are offering this year are exceptionally vigorous and well supplied with fibrous feeding roots that minimize transplanting losses.

	Each	Per 10	Per 100
8 to 10 ft., 1½ to 2 in. cal.	$2.00	$15.00	$125.00
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12 to 14 ft., 3 to 4 in. cal.	6.00	50.00	450.00

Deutzia Gracilis

Its attractive flowers at the close of May, its rounded compact habit, its sturdy manner of growth, and its adaptability to a wide range of soils and climates make it desirable for lawns of every character.

	Each	Per 10	Per 100
1 to 1½ ft.	$0.25	$2.00	$15.00

Japanese Maples

Japanese Maples endure partial shade. Charming and attractive effects are possible with these choice little trees that have such a variation of foliage. The Autumn tints are striking. Being of small size, the plants may be used where space is limited; especially adapted for planting in front of evergreen borders, in groups for color effects, or individually in prominent places. There is a long list of varieties, varying in manner of growth as well as in color and shape of leaf. They range in price from $2.00 to $7.50 each.

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a *de luxe* catalogue, accurately describing nearly 500 varieties of Irises (including my own Wyomissing Seedlings), a large collection of Phloxes and Asters, and probably the finest varieties of Peonies ever offered. My new Lilacs include Lemoines' latest introductions, and my list of Roses is specially complete. Twenty-four full page illustrations (twelve in natural colors) show the beauties of my gardens, perennials and shrubs. If you desire a copy of this catalogue write me at once.

BERTRAND H. FARR, *Wyomissing Nurseries*

104 Garfield Avenue, Wyomissing, Penna.

Shrubs For Your Home Grounds

Shrub-planting time will be here soon—but the time for planning is here *now*. Few home plantings have enough shrubs, for they have a multitude of uses — the low-growing kinds for hiding foundations and massing in front of the shrub border; the tall sorts for screens or hedges. A good collection presents a great variety of color in flowers and foliage during the whole season, and is a valuable asset to the home grounds.

Our Guide to Garden Plants

gives practical instructions for arranging shrub borders, massing for color or screens. The catalogue also includes a complete list of desirable Shrubs, Evergreens, Roses, Perennials and Bedding Plants. Whether you desire a single plant or a complete planting, you should have a copy—write for it today.

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Cowee's Gladiolus

If you have never grown Gladiolus from the bulbs produced at Meadowvale Farms you cannot know the full beauty of these glorious flowers. Cowee's Gladiolus bulbs are the best that it is humanly possible to produce.

My 1916 Catalogue

lists nearly a hundred superb Gladioli of my own introduction, as well as those of Groffs (whose productions I control), and other noted growers. Send today for a copy of this booklet—free on request.

ARTHUR COWEE, Meadowvale Farms
Box 184, Berlin, N. Y.

Water Lilies for *Your* Garden

You can grow these beautiful flowers just as easily as asters or sweet peas. A half barrel or a small pool is all you need. I can help you with your plans and in selecting the right varieties.

My 1916 Catalogue gives full instructions for planting, with descriptions of varieties and pictures of tubs and pools. I will be pleased to mail a copy to you on request.

WILLIAM TRICKER
Water-Lily Specialist
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One Plant — or a Complete Planting

That is what our service offers to our patrons, whether they are located near our home city or at a considerable distance. As practical plant growers and landscape designers we will assist you to select the proper trees and shrubs, and suggest the proper arrangement for your grounds.

Our 1916 Catalogue

is a complete list of the desirable Roses, Shrubs, Shade Trees, Evergreens and hardy plants for the northern United States. It has been carefully compiled from our experience and from other reliable sources. We will mail a copy of this catalogue free to readers of the *Garden Magazine* on request.

Baur Floral Co

15 East Ninth St., Dept A, Erie, Pa.

The vines of plants that will grow in the shade depend almost entirely on the density of it and so I planted in tubs and boxes Geraniums, Phlox, Begonias and some of the annual flowering plants, and placed them under trees where some sunlight could get through or between the branches. All were a success. I believe, therefore, that most if not all annual flowering plants can be grown in this way.

With plants that have colored foliage, such as Coleus, colored-leaved Cannas, Acalypha, Acanthus, Centaurea, I succeeded in the shade of trees, with practically no sunlight. Many bulbous plants will grow under shade of trees because the growth is made early in spring before the foliage is dense and moisture scarce. We had fairly good results with Pansies, Fuchsias, Begonias, some Roses and Four o'clock, planted around buildings, where sunlight does not reach at any time during the day. Sometimes in very densely shaded corners, especially if there is much moisture, hardy ferns will be the most satisfactory thing to plant. The August Lily (Funkia) and Lily-of-the-valley did well in very shaded places around buildings.

Maryland. G. H. GAREKOL.

The Inexpensive Luxury of an Asparagus Bed

NOT only is asparagus the most delicious vegetable that a beneficent Providence has caused to spring out of the earth, but, strange as it may seem, none other is so easily cared for nor produces in such profusion for so many years. Just understand what is needful for its growth and there is no more skill required than in growing potatoes.

First, it must be given a deep, mellow soil that is not stony and will not bake. This is to permit deep plowing, filling it with vegetable matter (humus) upon which asparagus feeds in a marked manner, and the rapid straight growth of the shoots. Plow a foot deep, if possible, some land that was not in sod last year, plow in six inches of manure and harrow it well into the soil. Next, run the cultivator through every five feet to excavate trenches ten inches deep, and draw the marker across these two and one half feet apart. At each intersection set an asparagus plant, with its crown eight inches below the surrounding surface. If you are not certain the soil is sufficiently enriched, place a forkful of well-rotted manure under each plant deep enough so that two inches of earth may be placed between it and the plant.

Above the plants draw two inches of mellow soil and firmly tread it all except on the crown. If you live amid the clay lands, do not despair; just mix sand or coal ashes well with the soil of the bed and don't leave out the manure. When the fernlike growth pricks through the surface, keep out the weeds by running the cultivator through and let the earth work into the trench a little at a time until by midsummer it is full, the asparagus meanwhile keeping on top. Keep after the weeds. When the bed is one year old you may have a small cutting as a reward in miniature and a foretaste of the good to come.

Salt is an aid in discouraging weeds and does not hurt the asparagus, even when the surface is made white with it; but do not imagine it is all the plant food asparagus needs. The big, luscious buds grow from being well fertilized. If the soil is well supplied with decaying straw and rich manure is scarce, sprinkle over the surface (at the rate of one half a ton per acre) some commercial fertilizer that is well supplied with ammonia (not less than 5 per cent.) available phosphoric acid 8 per cent. and actual potash 6 to 8 per cent. If depending upon stable manure and the crop does not grow thriftily, sprinkle lightly with nitrate of soda once or twice during the season. Never set the plants in autumn.

Should rust show, spray with bordeaux mixture; if asparagus beetles, stir an ounce of arsenate of lead into each gallon of spray. Let the tops get brown in the fall before mowing them. Of course the weeds must be kept down in succeeding seasons, and manure worked into the ground, but no preparation and planting is required and hence the labor is much less than in raising potatoes. A plot 50 x 100 ft. will give a large family an abundance through a long season, and provide a quantity for sale.

Connecticut. HOLLISTER SAGE.

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Our Rose Plants are strongest and best. They are always grown on their own roots.

Sixty-five years of "knowing how" behind each plant; that fact is your guarantee of satisfaction. Safe delivery guaranteed—our guide explains. No matter where you live you can *depend* on getting D & C roses in perfect condition. Write for

Our "New Guide to Rose Culture" for 1916—Free

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Gorgeous Garden Gladioli

12 Large Gladioli Bulbs, total value $1, postpaid **30c.** 2 each Yellow, Blue, Pink, Cream, Rose, Red, all named, properly labeled. 4 lots, 48 big bulbs, 8 of each color, total value $4, postpaid **$1.** Beautiful book on Gladioli, Dahlias, Hardy Chrysanthemums, FREE

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Huntington Quality

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Faust, Velvet King, Taconic, Pink and White Mixed	1.25
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Peace, Princepine, Niagara, Panama.	3.50
Europa, Pink Perfection, War, Jane Dieulafoy	$5.00
To prepay add 25c per 100	

	per 100
Privet in variety	$2.00 and up
Hydrangea	5.00 " "
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3 ft. to 20 ft.

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Plant Now for Immediate Effect

Choice stock up to 25 ft. high. Evergreens in 70 varieties. Maples, Lindens, Dogwood and other flowering trees in all the leading sorts. Hardy Perennials, Vines and Shrubs.

Choice Fruit Trees in Bearing Size will save you two to four years over ordinary sizes.

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Free catalogue, beautifully illustrated, is "chock full" of information. Send for your copy to-day.

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Make Your Garden Lead the Season Be First!

With side walls 2½ ft. high ready for roof and side sash

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You know how delicious are your own first vegetables; how delightful the first flowers and, if you grow things to sell, how profitable!

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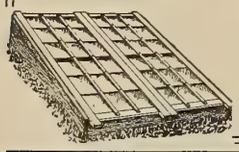

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Remaking a Poor Garden Soil

MANY home gardens have soils so poor that a satisfactory growth of fruit and vegetables can not be secured. It may be on account of underlying rock formations, or clay formations, or the garden may be too wet or too dry, but in any case the conditions are discouraging, viewed from the standpoint of the success of the things you would like to plant. Generally these gardens are located in the only space available and a new garden can not be had. Yet you would like to have a garden soil that is first class. The problem resolves itself into how to make over the poor soil so it will be rich, productive, moisture-retaining and generally satisfactory.

Remaking a poor soil is entirely practicable and it will not cost you very much in either labor or money. A few dollars in real money spent for wages for work wisely directed will go a long way in the garden. As for materials needed, you can use the most expensive fertilizers lavishly. Fertilizers are commodities manufactured and sold to be used profitably on large farms, and in your little eighth-acre garden the cost of the heaviest application will be comparatively insignificant.

No attempt will be made here to explain soil processes, or to give the technical reasons for the suggestions offered. Follow the directions and you will produce results. The objects to accomplish in transforming a poor soil can be classed roughly into five divisions. The texture of the soil must be changed and improved; drainage must be secured if not present; the soil must be made to hold moisture better than it now does; it must be better supplied with plant foods; and it must be filled with organic matter.

The materials you can use in securing these objects are cut straw or hay, buckwheat hulls, leaves or other similar vegetable matter, turnips and other such heavy-rooted crops, leguminous crops and mulches, and commercial potash, phosphorus, nitrogen and lime, in the different forms available. You can use cut weeds instead of straw or hay, and you can use manure. But it is not wise always to do so, because these materials may fill your garden soil with weed seeds that will be a curse for years.

Plow up or dig up the ground eighteen to twenty-four inches deep. If there is slate, hardpan or clay within four feet of the surface, break this up with dynamite. Unless the subsoil is very sandy, I would blast it anyhow, though much more mildly than if it was composed of rock or clay.

Provide a large quantity of the straw or hay cut into three or four inch lengths—half a ton or so, to start with. Then make piles of the garden earth and this cut hay, taking twelve or eighteen inches off the surface of the entire garden. Put a six-inch layer of hay and then six inches of earth, alternating them, till you get the pile three or four feet high. Permit these piles to remain a year, or at least over one winter. Keep them moist if possible, but not soggy wet. If you want to improve their appearance and aid in the improvement process, sow all over them crimson clover, vetch or cow peas. The growth of these plants will not interfere with the weathering you want, nor with the freezing over winter.

Mixing the earth with vegetable matter is for the purpose of improving the texture of the soil and filling it with organic matter, to the end that it will have the granular, crumbling nature which is easily worked and which holds moisture. The next season spread out the piles. The piling never will need to be done again.

Either while you are building the piles of dirt and hay, or when you spread the piles out, mix with the soil the following commercial tonics and medicines: Ground limestone at the rate of four to six tons an acre, or hydrated lime at the rate of two thousand pounds an acre. The former should be renewed, on the surface and raked in, every six years; the latter every three years. Ground phosphate rock, raw, three tons an acre, or Thomas slag, one and a half to two tons an acre (and cut the lime application the same amount). Muriate of potash, three hundred pounds an acre, or kainit twelve hundred pounds an acre, or unleached wood ashes three thousand pounds an acre (cutting down the lime the same number of pounds).

After the piles are spread out and just about the time you plant your first crops in the new soil, apply

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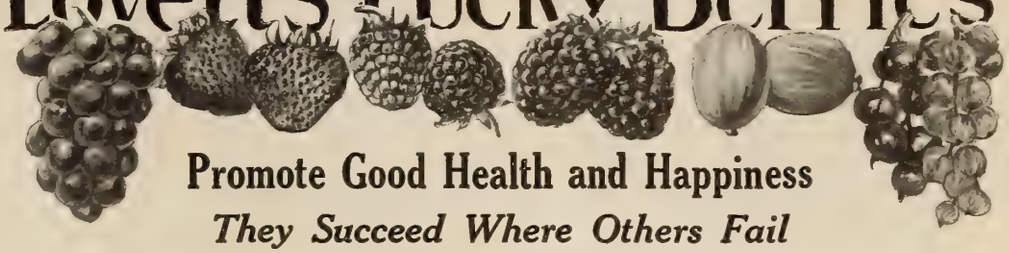

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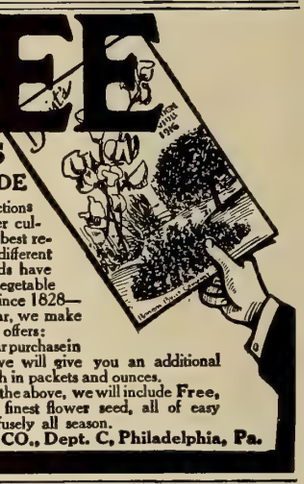

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nitrate of soda at the rate of one hundred pounds an acre, or cotton seed meal at the rate of one thousand six hundred pounds an acre (cutting down the potash or kainit one half).

Unless natural drainage is perfect, you had better run one or two lines of tile under your garden while you have it torn up. In some cases a heavy blast placed ten to thirty feet deep in the ground will give you good drainage.

A soil made in the way described will be very rich, though it will reach its best a year or two after you begin to grow things in it. To keep it in the highly productive condition, certain fundamental treatment is necessary. You have built up a delicately balanced condition. Neglect in any of many forms will ruin it again, agriculturally. Keep it worked deeply—work it ten inches or a foot deep each spring, and several times each spring to a shallower depth. Protect the surface from dashing, eroding, cementing rains, with growing things, as much as possible, especially over winter. You can do this by planting cover crops of crimson clover, vetch, cow peas, or even turnips on any spot not occupied by a regular crop. Aim to turn under a lot of vegetation every year. Conserve the moisture supply, so bacteria will be active. The phosphate rock, Thomas slag, potash, kainit, nitrate of soda and cotton seed meal should be applied every season, though of course you will not use all of these, since some of them are alternatives. The directions given apply to ordinary soils in the worst possible condition. The treatment is radical and complete. You will have to decide whether your soil demands the entire programme, or whether you safely can adopt modifications. In any case, don't leave out the organic matter, the lime or the drainage.

If your garden is too big to be handled as suggested, do part of it at a time. Sometimes it is a wise plan to have one pile of "soil" coming on all the time—rotting the vegetable matter and digesting the lime and commercial fertilizer. You can handle such a treatment with your own hands.

Maryland J. R. MATTERN.

Figuring Fertilizers for Square Yards or Feet

THE gardener who is lost in the bewildering instructions to use dressings at "rate per acre" usually overdoes the thing when dealing with small areas.

From the accompanying table any given quantity from 100 to 1,000 pounds an acre may be at once reduced to the corresponding amount per square foot or yard. It will be seen that the standard thousand pounds to the acre is less than four ounces to an area of 2 x 5 ft. spread completely over it and only 176 grains to a square foot.

POUNDS FOR ONE ACRE	EQUIVALENT FOR 1 SQ. YD. (OUNCES)	EQUIVALENT FOR 10 SQ. FT. (OUNCES)	EQUIVALENT FOR 1 SQ. FT.	
			(OUNCE)	(GRAINS)
100	$\frac{2}{3}$	$\frac{2}{3}$	.037—	17.7
200	$\frac{4}{3}$	$\frac{4}{3}$	.073+	35.
300	1	$1\frac{1}{10}$	.110+	53.8
400	$1\frac{1}{3}$	$1\frac{1}{2}$	.147—	70.5
500	$1\frac{2}{3}$	$1\frac{4}{5}$	.183+	87.9
600	2	$2\frac{1}{5}$	.220+	105.6
700	$2\frac{1}{3}$	$2\frac{1}{2}$	.257+	123.2
800	$2\frac{2}{3}$	3	.294+	141.
900	3	$3\frac{1}{3}$	.330—	158.2
1000	$3\frac{1}{3}$	$3\frac{2}{3}$	.367+	176.

Pinching off Rose Buds

IT TAKES a strong determination and a heart as hard as Pharaoh's to deliberately pinch off the first buds on a maiden Rose bush that we are so anxious to see bloom, but as flower bearing is the process of reproduction the apparently cruel habit of pinching off the buds that appear the first season will result in a conservation of strength that will give more blooms the next season.

Picking off the lower leaves from the Rose bushes to let the sunlight strike in at the roots and allow a better circulation of air in and about the plant is held to be important by some very successful rosarians. Of course it is superfluous to add the advice to keep the Rose bed weeded. The Rose demands all the strength the soil can give.

Pennsylvania. H. G. READING.

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The GARDEN MAGAZINE READERS' SERVICE

This department will help in dealing with general conditions. It cannot render personal professional service

Keeping Box Trees Properly

I have two pyramid boxwood trees in cement boxes, which are constantly shedding their leaves. In what temperature should they be kept for best results, and how often should they be watered? Will they leaf out again in the spring?—J. H. W., Mass.

—THE box trees may be suffering either from insufficient moisture in the air or too much water at the root. If the cement boxes do not have proper drainage, the trees cannot live in them. If the boxes are too large, so that the soil sours, the plants must necessarily suffer. It is not so much a question of temperature as of moisture conditions. Box trees will stand quite a good deal of frost, but they cannot be expected to thrive in a growing temperature at a period when they are supposed to go to rest. The room may be too warm or the air too dry, which is practically the same thing in the final results. The best plan would be to ask some local professional gardener. The plant would probably do better if it were taken out of the cement box, plunged into open ground, mulched heavily with stable manure or litter around the roots, and given protection from sunshine during freezing weather. Of course it is understood that the stable manure must be well rotted.

A "Thatch" Shingle Roof

I recently noticed on a house what to me was a new type of roof, a sort of thatch effect. Where and how is such a roofing made, and how much would it cost in comparison to an ordinary shingle roof?—F. B. W., Iowa.

—THE roof is called a woven shingle roof. It is made from ordinary shingles laid in very much narrower courses than ordinarily and in irregular instead of straight line. The curved edges are first built up with boards to the desired curve and shingled on top of this. It is a very expensive method of making a roof. It costs at least three times as much as an ordinary shingle roof and requires workmen who are skilled in this particular work. It would be extremely unlikely that you would find this practicable in your locality unless workmen there happen to know how to do it or are willing to try it out experimentally on a small scale first.

Polishing Black Walnut Wood

I am making a hall clock from an old black walnut bookcase, and I want to know how to finish the case, the wood having been scraped and sandpapered, so as to make it rich looking. I prefer a plain dull finish.—S. H. J., New York.

—TO GIVE black walnut a fine polish so as to resemble rich old wood, apply a coat of shellac varnish, and then rub it with a piece of smooth pumice stone until dry. Another coat may be given and the rubbing repeated. After this, a coat of polish, made of linseed oil, beeswax and turpentine, may be well rubbed in with a dauber, made of a piece of sponge tightly wrapped in a piece of fine flannel several times folded and moistened with the polish. If the work is not fine enough it may be smoothed with the finest sandpaper and the rubbing repeated. In the course of time the walnut becomes very dark and rich in color, and in every way superior to that which has been varnished.

The Use of Chicken Manure

Would it be beneficial or injurious to the soil to have chicken manure spread on it during the winter? If the manure lays all winter would it be too hot for the ground in the spring?—F. C. B., New York.

—IF CHICKEN manure is spread on the ground during the winter, by the time that spring arrives you will find that you will get practically no results from it. All the quickly available nitrogenous matter will be dissolved and washed away. Chicken manure furnishes elements in more concentrated form than any other manure. Owing to its concentration it should be mixed with some less active material to increase its bulk. The character of the material to add depends on whether the soil is light and sandy or a heavy loam or clay. For either light or heavy soils it may be mixed with wood ashes if it is used at once, using three parts of hen manure to one of ashes. For light sandy soils with little humus, mix three or four times as much rich leafmold or loam. For heavy soils use a sandy loam in place of the leafmold, or road dust or even coal ashes. Either of these composts may be applied as top dressings or directly to the plant.

For a Shaded Strip

What flowers will grow in the space under a window, about 3 by 6 feet, receiving no sun until about two o'clock in the afternoons in summer? A Wisteria, planted there now, is very spindly and unsatisfactory.—B. F. C., New Jersey.

—WE DO not see why you should have any difficulty in growing plants in a plot that gets no sun until two o'clock, unless there is excessive drainage around the house foundations and it is quite likely, also, that the soil is not of the most fertile character. Cultivate the soil and trench it two feet deep, adding a good dressing of stable manure at the same time, then water copiously during the growing season. You ought to be able to grow there Begonias, Geraniums, nearly all the hardy ferns, Phlox and most of the flowering shrubs if these directions are carried out.

Shaping Evergreens

What is the best time of the year to trim or shape Spruce, Cedars and evergreens in general?—H. F. C., Mass.

—THE pruning of all evergreens should be done as they start into growth; in your section of the country during the month of May.

Stuccoing a Frame House

Is it possible to stucco an old house at this time of the year or should I wait until spring? Is it durable enough to pay to use it instead of paint, and what is the probable cost? Is there any choice in color?—M. S. G., Conn.

—STUCCO cannot safely be applied in freezing weather. It would be running an unnecessary risk to proceed with the work at this time. It would depend entirely on what material the house walls are built of, as to how the stucco is applied. The choice of color would depend entirely on local conditions. A cream or buff is frequently used as being more attractive than the natural gray, or uncolored material. It is, of course, far more durable than paint, but is also decidedly more expensive, so much so that the two are not usually associated as alternatives. The cost is so much a matter of local factors that a contractor in your vicinity could give you much more satisfactory figures than we could.

Using Old Material for a Garage

I want to build, cheaply, a garage out of material used in an old barn, the main part of which was 10 by 24 feet. I want to make the garage 12 by 24 feet; trench for foundation 18 inches deep, 1 foot wide, with 6 inches of field stone, 6 inches broken stone, 6 inches smaller stone with cement. One foot above ground concrete 8 inches wide. There will be no floor above; will it be necessary to tie the rafters so as to keep them from spreading? Will the roof be a good pitch if I use the old rafters?—E. O. T., New Jersey.

—WE THINK it would be a mistake to carry the foundation wall down only 18 inches. It is almost sure to be heaved by the frost and the building thrown out of line. Carry the foundations down 3 feet below the surface; make a concrete wall above ground not less than 10 inches wide instead of 8. It takes very little more material, and an 8-inch wall is very flimsy unless it is particularly well made. The old rafters would apparently do very nicely, giving you a slightly lower pitch, which would be all right. It would be a safe rule not to let the pitch be less than a third—that is, 1 foot rise to 3 foot span. It would be better to tie the end pairs of rafters and perhaps two or three pair in between in order to prevent spreading. There is no need of tying them all.

Three Earliest Currants, Grapes and Plums

What are the three earliest fruiting currants, grapes, and plums?—B. D., New Jersey.

—THE three earliest currants are Fay, Cherry, and Perfection, though there is really very little difference in the ripening of currants. The three earliest grapes are Winchell, Moore Early and Worden. The three earliest plums are Red June, Burbank, and Abundance, all of which are Japanese plums; of the Domesticas the three earliest are Bradshaw, Reine Claude, and Diamond—at least, these three are the earliest that are worth growing.—U. P. H.

The Pine Borer

Our Scotch, Austrian, and Resinosa Pines are infested with a worm which during the summer bores into the live layers of the bark. The worm is almost inaccessible to a wire because his burrow is usually irregular and soon fills with hardened sap. The worm frequently completely girdles limbs of considerable size where they join the trunk and sometimes almost girdles the trunk. Will you kindly tell me what this worm is, what it's life's cycle is and how we may best prevent the injury which it causes?—C. M. H., Mass.

—THIS insect is known as the Pine Sesian, Parharmonia pini Kell., a rather common borer in the living bark of limbs and trunks of Pine, though rarely abundant enough to cause serious injury; it is rather closely related to the much better known peach borer, another clear-wing which has earned an unenviable reputation because of its depredations upon peach. This Pine pest is the young of a moderate-sized, blackish-gray, red-shaded moth with a wing spread of a little more than an inch. The whitish caterpillar, for such it is, lives in and moves through the pitch very readily, in spite of the fact that this exudation is deadly to most insects; and, although it inhabits such a protective medium, it is in turn subject to attack by certain parasitic flies. The adult is abroad during June, through July and into August. The little that is known of this insect indicates that possibly three years may be required to complete the life cycle; that is, the caterpillars live under the bark and in their resin impregnated retreats for nearly three years. The injury occurs more frequently just below a branch and sometimes near a wound made by an axe or where a limb has been wrenched off by the wind. This insect, as well as some of its associates, presumably deposits its eggs near rough places on the bark.

Without knowing the exact local conditions it is difficult to judge as to the practicability of any recommendations, because methods of value in connection with lawn or park trees would be impractical in the average forest. About the only thing that could be done—and this is practical only with the more highly valued park trees—is to examine them each year, preferably in September, for signs of injury by the young borers, and then cutting out and destroying them. If the insect is abundant it should not be very difficult, after a little experience, to recognize these points of initial attack and check the trouble at its inception. Systematic treatment of this character in the spring, probably in mid-May, ought to result in freeing an infested grove in a comparatively short time. It is possible that infestation could be prevented to some extent by giving a light coating of pine tar to the rough areas mentioned above, making the application about the middle of June, in order to prevent the deposition of eggs. This would probably mean the systematic treatment of a number of trees and may be inadvisable under the circumstances.—E. P. FELT.

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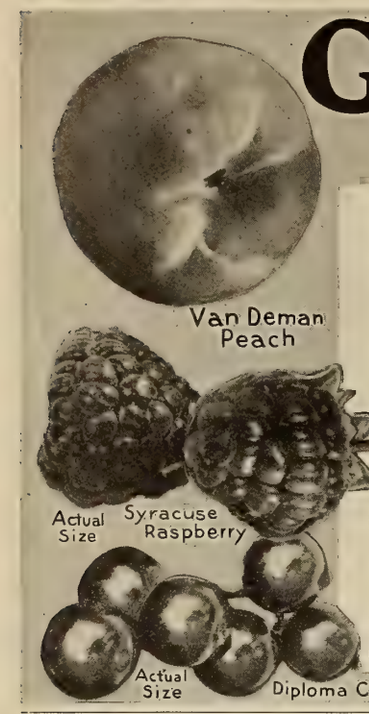

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"Winter Gardening" for the Coming Year's Results

GARDENING, with me, is a hobby. Everybody should have a hobby, to keep his mind young and elastic, and to prevent it from hardening in the groove of his daily occupation. And where is there a hobby that is saner, more wholesome, more satisfying, more health-giving, more mind-resting and body-refreshing than gardening?

At any time during the winter I do my real gardening, for I plan my next year's garden.

I take sheets of bristol board of a convenient size and shape—about fourteen inches by seventeen inches—and lay out my gardens. Good strong paper probably will do as well.

If I have a perennial border to make, I map it out on one of these sheets, drawing it to scale—half an inch to the foot, or a quarter or an eighth or a sixteenth, depending on its size. I fill it in, also to scale, with the hardy flowers that are to occupy it. In this way, by a study of colors and heights, I am able to get a harmonious grouping, with no discords of bloom and with no taller plants in front to shut out the sunlight from shorter ones behind. When the bed is ready in the spring I take my tape and a bundle of small sticks, and mark the exact spot where every plant is to go.

My bed of annuals is mapped out in the same way, and is planted with close attention to the map. In the same way, the arrangement of spring-flowering bulbs is made in advance, and planting in October is simply a mechanical carrying out in the beds of the garden plan on paper.

One sheet shows in miniature the whole grounds, with the relation of vegetable garden to the flower beds and borders, of shrubbery borders to orderly arrays of Roses and Peonies and perennial Phlox. Another shows where each fruit bush and tree stands with its complete name and address, as it were.

Nor is this the end of the usefulness of this winter gardening on paper. I am an amateur at gardening, and frequently there are many things about it I am compelled to look up. One sheet shows a table of annuals, with the necessary facts about planting, height, color, fertilization, blooming period, etc., of each kind. Another performs the same service for perennials, including methods of propagation and mulching. By this table, when fall-covering time comes, I am warned against putting manure on Iris and Canterbury Bells. By it I can see at a glance how often Phlox should be divided, and when and how. Still another warns me not to prune Spiraea van Houttei in the fall, because that is cutting off the spring bloom before it has a chance to shower out in its white splendor. This one gives the names, heights, blooming period and pruning time for all the shrubs that are growing in my yard.

Still another treats bulbs, and shows depths and distances, planting time and blooming period, how to care for the bulbs during their resting period, etc.

I particularly like Gladiolus, and lots of them. I have a large bed, and when an uncommonly striking blossom appears, I want to know its name and pedigree. So I have another sheet for the Gladiolus bed. The bulbs are planted at half-foot intervals, and on this sheet at half inch intervals appear numbers. In the margin of the sheet these numbers appear again, and after each is the name of the gladiolus planted at the particular spot where the number appears on the diagram, and the dealer from whom I purchased the bulb.

Then, when a bloom appeals to me so that I want to harvest the bulblets—as well as the bulb—and grow more of them, I "have its number." And when a planted bulb is a disappointment, I know what variety or dealer to strike off the list. The diagram is an aid in planting, because I arrange it first and plant from it; it is an aid during the blooming season, because from it I can readily get the name of every plant; and it is an aid in the harvesting season when the blooms are gone, because by its use I can keep each kind of bulb and bulblet separate for next year's planting.

When I find a hint in THE GARDEN MAGAZINE about the culture of any particular plant, there is a sheet on which it can be entered in such a relation to the subject that when I want it I can find it at a glance.

Minnesota. S. H. B.

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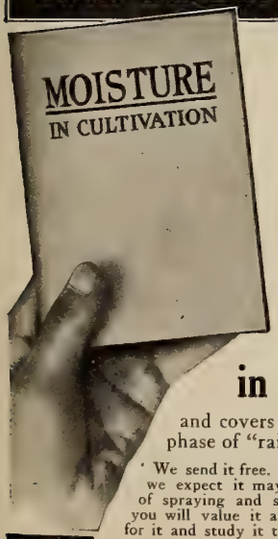

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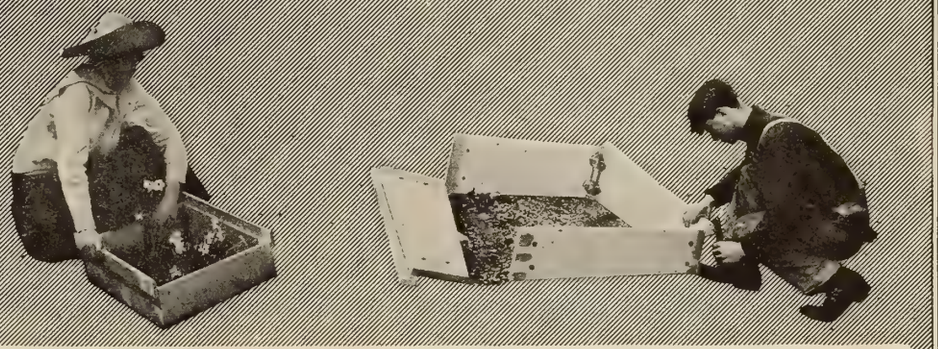

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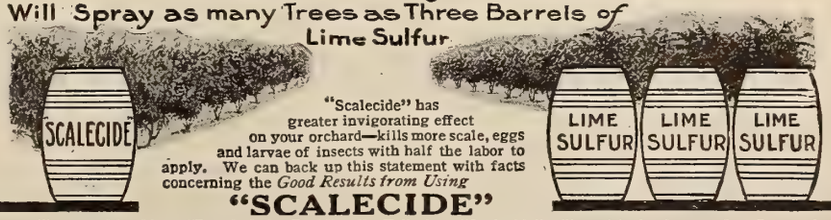

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COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Lectures in February

1. Lake Geneva, Wis., Gardeners' and Foremen's Association: meeting.
   Buffalo, N. Y., Florists' Club: meeting.
   Florists' Club of Philadelphia, Pa.: meeting.
   Florists' Club of Washington, D. C.: meeting.
   Minneapolis, Minn., Florists' Club: meeting.
   Pittsburgh, Pa., Florists' and Gardeners' Club: meeting.
   State Florists' Association of Indiana: meeting.
3. Marshfield, Mass., Garden Club: meeting.
   Albany, N. Y., Florists' Club: meeting.
   Chicago, Ill., Florists' Club: meeting.
   Dayton, Ohio, Florists' Club: meeting.
   Milwaukee, Wis., Gardeners' Club: meeting.
   Worcester County Horticultural Society, Worcester, Mass.: lecture, "Venice," Miss H. L. Bolles.
4. Pasadena, Cal., Horticultural Society: meeting.
5. Massachusetts Horticultural Society, Boston Mass.: lecture, "Alfalfa Culture in New England," Prof. S. C. Damon.
7. New Bedford, Mass., Horticultural Society: meeting.
   Colorado Florists' Club, Denver, Colo.: meeting.
   Detroit, Mich., Garden Club: meeting.
8. Syracuse, N. Y., Rose Society: meeting.
9. Shedowa Garden Club, Garden City, L. I.: meeting.
   Nassau County Horticultural Society, Glen Cove, L. I.: meeting.
   Morris Co. Gardeners' and Florists' Society, Madison, N. J.: meeting.
10. Short Hills, N. J., Garden Club: meeting.
    Omaha, Neb., Florists' Club: meeting.
    St. Louis, Mo., Florists' Club: meeting.
    Worcester County Horticultural Society, Worcester, Mass.: lecture, "Flowers and Gardens of Japan," Prof. E. H. Wilson.
11. Connecticut Horticultural Society, Hartford, Conn.: meeting.
12. Massachusetts Horticultural Society, Boston, Mass.: lecture, "Development of Fruits for Special Conditions," Prof. W. T. Macoun.
    Dobbs Ferry, N. Y., Horticultural Association: meeting.
14. Garden Club of New Rochelle, N. Y.: meeting.
    Rochester, N. Y., Florists' Association: meeting.
    Park Garden Club, Flushing, L. I.: meeting.
    New York Florists' Club, New York City: meeting.
    Cincinnati, Ohio, Florists' Club: meeting.
    Germantown, Pa., Horticultural Society: exhibition.
15. Lake Geneva, Wis., Gardeners' and Foremen's Association: meeting.
    Gardeners' and Florists' Club of Boston, Mass.: meeting.
    Portland, Ore., Floral Society: meeting.
16. Tarrytown, N. Y., Horticultural Society: meeting.
17. Marshfield, Mass., Garden Club: meeting.
    Worcester County Horticultural Society, Worcester, Mass.: lecture, "The Canadian Selkirks," H. W. Gleason.
18. Pasadena, Cal., Horticultural Society: meeting.
19. Massachusetts Horticultural Society, Boston, Mass.: lecture, "Some History of the Grape in the United States," Geo. C. Husmann.
21. Detroit, Mich., Florists' Club: meeting.
    Florists' and Gardeners' Club of Rhode Island, Providence, R. I.: meeting.
24. Worcester County Horticultural Society, Worcester, Mass.: lecture, "Roses and Rose Gardens," Arthur Herrington.
25. Connecticut Horticultural Society, Hartford, Conn.: meeting.
26. Massachusetts Horticultural Society, Boston, Mass.: lecture, "Garden Writings," Leonard Barron.
    Dobbs Ferry, N. Y., Horticultural Association: meeting.
28. Park Garden Club, Flushing, L. I.: meeting.

Two Secretaries for Garden Clubs

IN THE November number of THE GARDEN MAGAZINE, Miss Youngs suggested that Garden Clubs have a social secretary to answer the many notes that add so to the duties of the Secretary. Our Club has a Recording Secretary and a Corresponding Secretary, and in this way neither one finds her duties crowding so heavily but that they may be properly and promptly attended to. I offer this as a possible solution to the problem for other Clubs.

K. K. MOSLE, Corresp. Secty.,
Garden Club, Somerset Hills, Mass.

Three New Roses Registered

THE following new roses, submitted by A. N. Pierson, of Cromwell, Conn., have been registered and publication of the same directed, according to the rules and regulations of the American Rose Society:

Mrs. Wm. R. Hearst—A sport from My Maryland with the same productive habit of growth and freedom of flowering. In color

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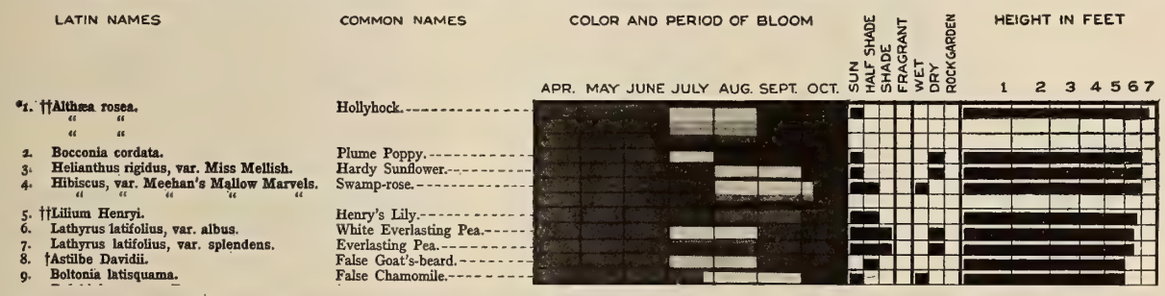
THE COLOR CHART FROM "THE GARDEN BLUEBOOK" AND HOW TO USE IT



In "The Garden Bluebook" this chart is 24 inches long and is printed in four colors. The centre panel shows against a background of green the natural colors of 167 perennials.

Suppose your garden should require a plant of medium height blooming late in July and blue in color. The column headed JULY will give us all the plants blooming in that month; that section of it between four and two feet high will include all those of medium height. Having found our plant, we move to the right and here we will find indicated by the presence or absence of a black spot whether our plant will grow well in sun, partial shade, or shade, or in two or more such situations; and whether it is fragrant or not.

Some plants are so constituted that they will thrive in sand and drought and others do not mind how wet their roots may be. These are marked under the headings DRY and WET. Lastly, we have a column indicating which of our plants are suitable also for the rock garden.

When all this is done and we know that we have something that fits all our requirements we look to the left, and there we find the names of this something.

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Fourth National Flower Show at Philadelphia

WITH a view to adding to the attractions of some of the display classes, the Schedule Committee of the National Flower Show has increased the prizes in the class covering Rose Gardens to $1,000, offering $500 as first, $300 as second, and $200 as third prizes. The prizes in the class for the best display of Rose plants to cover 200 square feet of space have been increased from $125 and $75 to $200 and $100.

Exhibitors of Roses in both commercial and private classes are reminded that under a new rule of the American Rose Society, all Roses with more than two growths (one pinch) will be disqualified, excepting in the classes calling for displays, and for 100 or more blooms in a vase, when two pinches will be allowed.

The Rose section, as prepared by the American Rose Society, contains an unusually liberal list of premiums, which aggregate considerably over $4,000. Almost all the varieties of Roses used commercially as cut flowers are classed, and new varieties are provided for; while Perpetuals, Teas, Wichuraianas and Polyanthas, and their hybrids, grown in pots and tubs, are amply provided for.

There is a liberal schedule prepared by the American Carnation Society covering Carnations. The prizes for the best display covering 150 square feet are $200, $150 and $100. And there are prizes of $50, $35 and $15 offered for the best vase of Carnations, not to exceed 300 blooms.

The retail classes in the Carnation section are somewhat novel. In the class for table decorations, $50 will be awarded to each table scoring not less than 90 points, $40 to each table scoring not less than 80 points, and $30 to each table scoring not less than 70 points. Another class covers basket arrangements, and the same idea prevails as to awards: $25 will be awarded to each arrangment scoring not less than 90 points; $20 to each arrangement scoring not less than 80 points; and $15 to each arrangement scoring not less than 70 points. But only six entries will be accepted in either of these classes.

The Carnation display will really form the "Jubilee Exhibition" of the American Carnation Society, celebrating the Society's twenty-fifth aniversary, and in commemoration of it, the Society offers its special "Silver Jubilee Medal" for award to each winner of one or more first premiums in the vase classes.

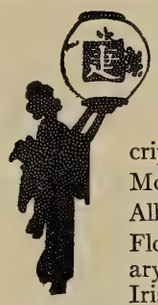
The American Sweet Pea Society includes a schedule covering New Winter Orchid Flowering, Standard Winter Orchid Flowering varieties, and 1915 Novelties.

Notable in this section of the schedule are the classes covering the Burpee prizes for the largest display of Sweet Peas.

The American Gladiolus Society aims for a display of forced blooms at this show, and has prepared a section of the schedule calling for about $300 in prizes.

An Innovation at the International Show

WHAT will be something of an innovation at flower shows will be the class added to the premium schedule for the forthcoming show in the Grand Central Palace, New York, covering a window box of wood, to contain flowering plants of a nature to last, outdoors, throughout the summer. A first prize of $25 is offered. A $100 cup has been offered to be awarded at the discretion of the committee; also a $50 cup. And $25 has been offered for the best specimen Bougainvillea exhibited.



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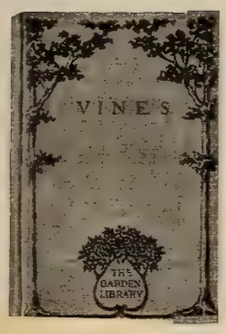

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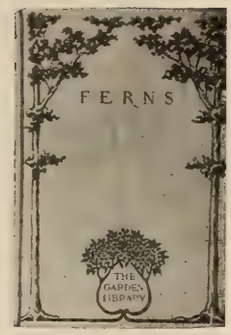
The Flower Garden
By Ida D. Bennett



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By G. A. Woolson

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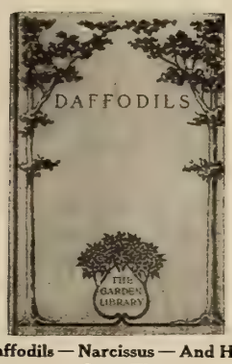
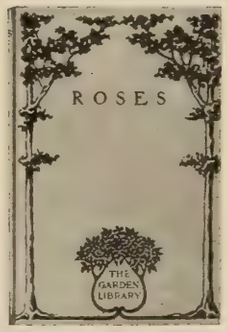


Daffodils — Narcissus — And How to Grow Them
By A. M. Kirby



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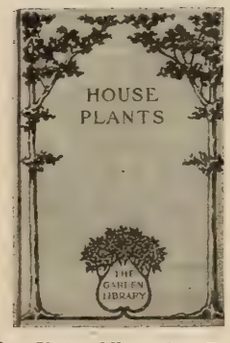

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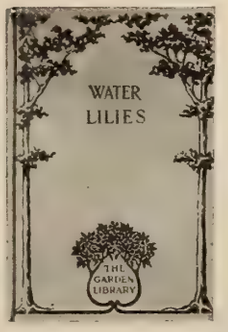

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By H. S. Conard and Henri Hus

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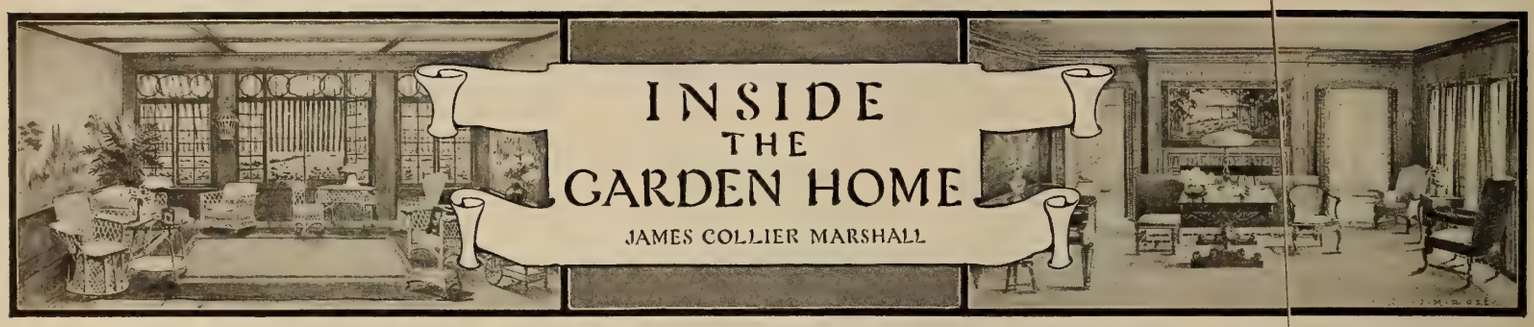

Space Saving in House Furnishing

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With a shade of hand painted parchment, this tall brass candle makes a splendid center table lamp

IT IS interesting to observe the great and far-reaching influence the modern apartment mode of living has had on the furniture designs of the day, an influence that is by no means bad, though many persons condemn it unequivocally, since to this influence we are indebted for the many space-saving devices that are as much appreciated by the occupant of a small country house as by the cliff dweller in the crowded city apartment house.

There is no reason why space-saving articles should not be used, and certainly the articles of this character to be found demonstrate very ably the fact that they not only may be useful but quite good-looking as well.

An excellent illustration of these qualities is found in the charming hall clocks that, designed primarily for apartment use, are being employed rather generally to-day in small country houses. In every way similar to the grandfather type—except that they are smaller—these make ideal decorations for the hall whose small proportions would not admit one of a larger size.

The great popularity of the drop leaf table in its various forms is undoubtedly due to the same reason and in this revival we have a great boon. It is doubtful if this type of table has ever before been so popular or used for so many different purposes. These are employed to-day as dining tables, as side tables, and, in their smaller forms, at the bedside; they are found not only in these but in many other designs and frequently so arranged that one table performs many different functions in the room.

Of these new tables, the writing table, shown here, will prove an interesting and useful adjunct for living room or bedroom. The illustration at the lower left of the page shows the desk when closed. The picture at the lower right shows it with the lid down to give more room for writing and the doors and cabinets open for stationery and writing materials. Besides a capacious drawer, the interesting feature of this desk is that the cabinet top may be lifted off and another leaf folded out, making it serviceable for cards or other purposes. Aside from its usefulness, the table is really a beautiful piece of furniture of solid mahogany having charming lines and slender reeded legs that speak its modeling after Sheraton. Its price of $75.00 is very low when one considers its appearance and multiple uses.

The joy of living in limited quarters is heightened by this mahogany table that folds into the space of its length by a two inch breadth

Not less interesting if less graceful is the combination tea wagon, shown at the bottom of the page. This article, designed to save steps and sturdily built to withstand hard usage, is a particular boon to the housewife or bachelor who, without service, wish to entertain with as little trouble as possible. To this end one finds the capacious drawer for cutlery and serviettes, and the pull-out sandwich board for bread cutting most convenient, while the folding top that may be used when closed as a tray or as a table, 28 by 30 inches, when open. Many uses will be found for two such fine shelves as are seen on this oaken piece that sells for $15.

The joy of living in limited quarters is further gladened by a simplified form of gateleg table that folds up into the space of its length by a two inch breadth. Such a one is the table seen in the middle of this page, where it shows both conditions. This comes in several sizes in plain mahogany, or in the painted finish. It may also be had with hand painted decorations on the mahogany background, a mode of finishing that is as delightful as it is unusual.

Lamps, too, have come in for their share of attention as regards size and adaptability, for example, the lamps shown here are especially designed for use in simple settings, being neither too large nor too rich for small and inexpensively furnished rooms and because of this restraint are the more entertaining and their costs are commensurate.

Utility plus beauty of design plus excellence in workmanship, adapts this mahogany writing table to many settings

The combination tea wagon carries your silver, linen, dishes and food, with shelves for its preparation and service

The desk, open for writing. The stationery rack may be lifted off and another leaf folded down adapting it for cards or tea

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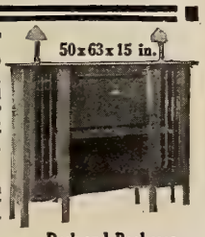

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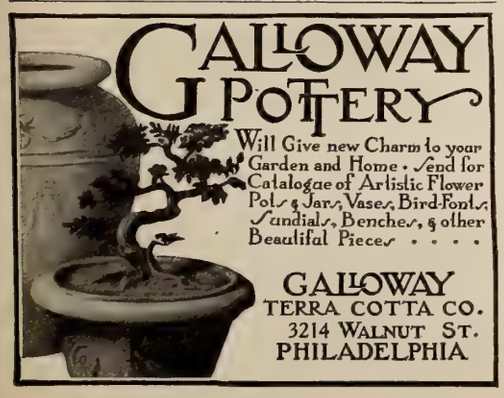

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SHARONWARE BIRD BATH

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Twenty styles, bird houses and shelters, results of 18 years' work for birds.

Bluebird House, $5; Houses for Purple Martins, $12, $15, $45, $65; for Flickers, $2.50 and $5; for Chickadees $1.50 and $2.50; for Tree Swallows, $3. Bird Baths, $6 and $12. Prices, f.o.b. Kankakee, Ill.

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The Decorative Odd Bit

THE home lover who is on the qui vive for interesting odd pieces of furniture that will add distinction and piquancy to the decorative scheme will find considerable pleasure in a number of good-looking new things that are being shown in the shops, among which the new iridescent glass is most conspicuous.

There is no better odd chair for hall or living room than this one of oak

Ranging through every grade of color, from faintly gleaming tints to the richest rainbow hues, this glass comes in manifold forms designed both for cut flowers and gold fish bowls. One of the finest I have seen is a very flat one, its bowl being about 7 inches wide by 3 inches deep, while the flat lip, measuring eight inches, gives an approximate diameter of 23 inches. Its colors beggar description. Flashing from its surface were the most gorgeous shades of red, orange, green, blue and purple. And the most interesting point of all this is that the proud owner of this splendid piece valued its beauty so highly that he had a table especially made for it, placing it before a mirror that reflects back its glories.

Nor is the odd piece less interesting when it is in the form of the more familiar lacquer, and particularly its color is that luminous Chinese red which is so decorative and satisfying under all conditions.

The tea table, pictured here, is finished in that fascinating color that will always be the convincing argument that mere man's love of red is well grounded! Excellently executed, with heavily raised work in the top it will prove an effective addition to any living room.

Among the simpler and more inexpensive articles in glass and crystal there is to be found an interesting set of three pieces for cut flowers. This set is composed of a low fluted dish twelve inches wide, with two 9½ inch vases large enough for a single rose and 2½ inches wide at the base. This combination also comes in both black and dark blue crystal and, with two pretty love birds in grey porcelain, costs only $9.00. There is no more fascinating arrangement for pale pink roses than to float them on black crystal.

The raised lacquer pattern of ivory, gold and black, relieves the intensity of the Chinese red with which this excellent tea table is finished, making it admirable for living room use

Interior: Home of Lilian Bayliss Green, Belmont, Mass. Editor "The Little House" Dept., Ladies' Home Journal

¶ An example of simple, economical home furnishing, in good taste; made possible by the use of LEAVENS' furniture exclusively.

¶ Our specialty in finishing to order enables the customer to carry out a color scheme, complete and harmonious in every detail.

¶ A wide variety of styles and finishes permits the exercise of individual taste.

¶ Shipments carefully made, insuring safety.

¶ Send for complete set No. 9, of over two hundred illustrations, and color chart of Leavens' finishes.

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Fence that meets all Requirements

YOU want fence that will enhance, not mar, the appearance of your property. You need fence that is long lasting—built to stand the wear and tear. There's a style of

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Ask your hardware dealer for *Excelsior Rust Proof Fences, Trellises, Trellis Arches, Flower Bed Guards and Tree Guards.*

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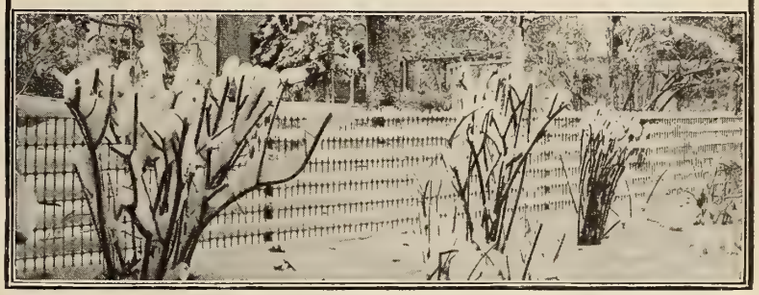

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That is why you can get-many things very cheaply that you could not get at all if they were made for you alone—or for part of the people in your town or your state.

That is why every progressive American manufacturer thinks first of the hundred million and tries to sell to everyone of them that possibly can use his product.

He aims at *volume* of business because he knows that every increase in quantity cuts down his manufacturing cost, enabling him to lower prices or improve quality which in turn will add to his volume and cut down his making costs again.

It is an endless chain: more volume—less cost—lower prices or better quality—more volume—less cost again—and so on.

But this chain could never be made without *national advertising* and *trade-mark identification* because these two forces are the things that make *volume* possible—the *six-cipher* kind of volume—the only kind that is recognized as volume in these days of big figures.

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THE GARDEN MAGAZINE

MEMBER OF THE QUOIN CLUB

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This Summer—the Ideal

Get rid of the inefficient horse-drawn mower with all its annoyances—do away with a squad of hand propelled grass cutting machines. *This* summer use the Ideal, the lawn mower that pushes itself.

Give your lawn *double* the care, more *cheaply*, more *efficiently*, and in *much less time* than by either of the old methods of mowing. The Ideal, with its simple, reliable clutch and automobile throttle control, stands unequaled in the field of lawn mowing contrivances.

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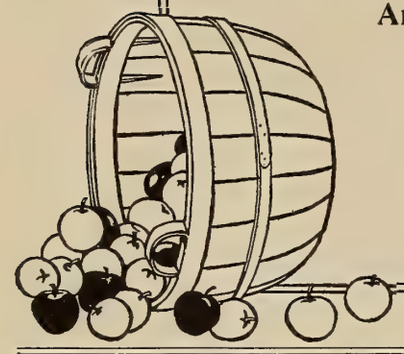

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SEND FOR CATALOG OF ALL TYPES OF LAWN MOWERS

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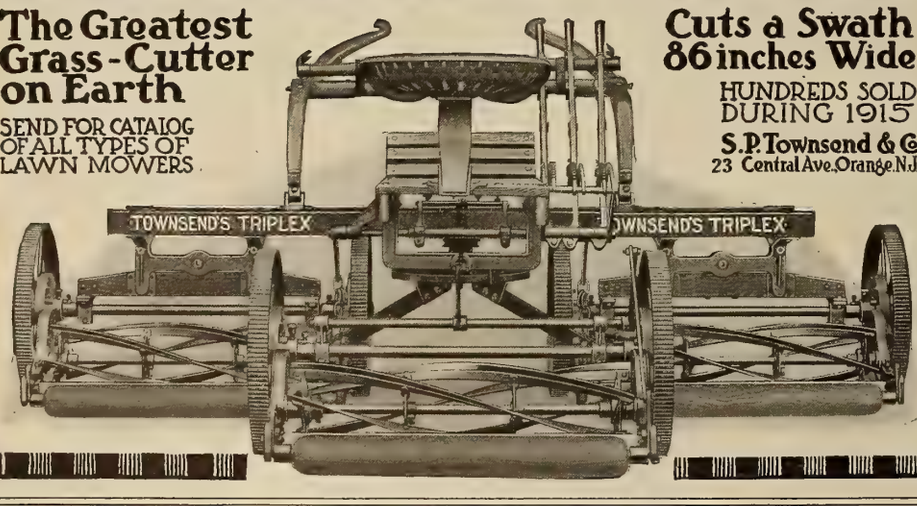

Classified Advertising Department

In this department are published announcements of firms offering goods or service of definite interest to garden enthusiasts. This department is also open to any of our subscribers who may wish to buy, sell or exchange goods through the use of announcements herein. The rate is five cents a word (average eight words to the line), payable in advance. The name and address is counted as part of the advertisement; initials or figures count the same as words. Copy must reach us not later than the 10th of the month preceding date of issue to appear in the edition dated the following month—Thus copy for the classified department of the March edition must be in our office February 10th. No display type allowed other than capitals on first line. Smallest advertisement accepted, $1.00.

Address Classified Advertising Department, The Garden Magazine, 11 West 32nd Street, New York City

GARDEN LECTURERS

MR. ROBERT PYLE—the well known Garden Lecturer and Rosarian invites correspondence from garden lovers and societies. Subject—"The American Rose Garden," illustrated with finely colored lantern slides. Address: West Grove, Penn.

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DINGEE ROSES. Pot grown plants safely transplanted any time during the growing season. Can be sent with the soil on the roots. Send for Guide to Rose Culture Free. The Dingee & Conard Co., West Grove, Pa.

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SEEDS AND BULBS—Continued

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DAHLIAS. Send today for my catalogue. It is free. Ralph Benjamin, Calverton, L. I.

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LANDSCAPE GARDENER, undertake greenhouse, growing of flowers, vegetables, accept Rosegarden, lawn making. References. Single. John Balint, Box 64, Bernardsville, N. J.

GARDENER, Head, expert in developing, creator beautiful estates to entire satisfaction, fully successful flowers, fruit, vegetables Farming, years' experience. Unexcelled reputation. John Braun, 368 Lexington Ave., New York.

MISCELLANEOUS

DOUBLE HOLLYHOCKS, Rockmont strain, white, blush, pink, red, yellow and black, separate colors, 85 cents per dozen; double mixed, 75 cents per dozen; Rainbow mixture, single hollyhocks, 24 for $1.00; all prepaid. Ask hundred rates. 40-page catalogue of trees, shrubs and flowers, including Colorado native plants. Rockmont Nursery, Boulder, Colorado.

THINGS THAT THRIVE. Ornamentals. I grow, prove, find dependable and distinct, then offer. My select list saves time and disappointment. Fred W. Card, Sylvania, Pa.

STRAWBERRY PLANTS. Roses, Dahlias, Gladioli, Fruit and Ornamental Trees, bushes, etc. My 1916 catalog now ready, it's free. Leamon G. Tingle, Box A., Pittsville, Md.

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BOOKS FOR THE GARDEN ENTHUSIAST

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THE FARMER'S CYCLOPEDIA is a farmer's most valuable asset in seven superb volumes—text made from the records of the Agricultural Department. A circular descriptive of the complete work mailed on request. Doubleday, Page & Company, Garden City, N. Y.

THE POCKET NATURE LIBRARY, a series of four pocket Nature books, leather bound—the birds, the flowers and trees, illustrated in beautiful colors. Mail postal for circular. Doubleday, Page & Company, Garden City, N. Y.

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Poultry, Kennel and Live Stock Directory

Information about the selection or care of dogs, poultry and live stock will be gladly given.

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Capercailzies, Black Game, Wild Turkeys, Quails, Rabbits, Deer, etc., for stocking purposes. **Fancy Pheasants, Peafowl, Swans, Cranes, Storks,** Ornamental Geese and Ducks, Foxes, Squirrels, Ferrets, etc., and all kinds of birds and animals.

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A BOG SPAVIN, PUFF or THOROUGHPIN, but
ABSORBINE
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will clean them off permanently, and you work the horse same time. **Does not blister** or remove the hair. $2.00 per bottle, delivered. Will tell you more if you write.
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Memorandum from the Advertising Department

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This service enables our advertisers to reach our readers by a more direct route than is many times taken. This "Open Sesame" is *advertising* that conforms as much as may be to the general taste of the readers of that magazine in which it is published. Being on "The Inside," we are able to suggest how our readers may be best interested in your product.

This service is entirely supplementary to that of those who have regular methods of handling their advertising. It is a primary service to those who have not regular publicity systems of their own, or at their command. So if you contemplate taking advertising space and desire our assistance, it is yours on request. Write, giving full particulars and descriptive literature.

THE GARDEN MAGAZINE
Advertising Department,
11 West 32nd Street New York City

Ice Water And Corn Won't Make Winter Eggs

BUT Red Comb Meat Mash proves its title, "The Great Egg Maker," wherever it is used. And it costs you less than you could buy the materials for and mix them yourself. Farmers and poultry keepers are making a fine profit from their flocks *right now*. You can too. One farm woman writes that her hens paid a yearly profit of $3.06 each. Another that her hens lay all winter long. *Hens conditioned on Red Comb took the special international prize for cold weather laying.* Join the profit makers. There is a Red Comb feed for every poultry purpose. Not excelled as a conditioner of market birds and show birds. Ask your Red Comb dealer.

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Also Mfrs. of the Famous Line of Red Horn Dairy Feeds
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Red Comb Means Health

Red Comb Meat Mash
The Great Egg Maker for Chickens Ducks and Turkeys

Red Comb Meat Mash is made of oatmeal, oil meal, corn meal, meat scrap, wheat bran, wheat middlings, alfalfa meal, and *not over 5% shell and 1% charcoal.* T. E. Quisenberry made 100 hens pay yearly profit of $7.16 each at the Missouri Poultry Experiment Station. An exceptional case, but shows what can be done by scientific feeding. Quisenberry writes "We feed Red Comb." Write for valuable free book "Feeding Poultry for Profit" written by six great poultry experts.

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The World's Champion Layer

Was bred by the use of Barron Blood. We have for sale, very choice S. C. White Leghorn Pullets and Cockerels, bred from special stock, imported direct from Barron, with guaranteed pedigree, over 280 eggs. They are the equal to the best ever sent to America. Prices $3 to $10. Special Price on pens, hatching eggs and baby chicks.

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MILLER'S AMERICAN POULTRY GUIDE

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POULTRY & EGGS FOR HATCHING for sale at bargain prices. Address
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Hodgson Portable Houses

BROODER can be operated out-of-doors in zero weather with little attention or expense. 50 to 100 chicks.
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SETTING COOP to set a hen in and brood her chicks. $3.00.
All neatly painted and quickly bolted together. Send for illustrated catalogue.

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The Breath of the Outdoors

THE gate is open and the path leads straight to the House & Garden of your dreams. How to plan your home, how to decorate and furnish it, how to plant a garden, how to care for it and enjoy it to the full—all these will be shown you by the experienced guide who meets you at the gate.

This is the mission of House & Garden. It preaches the gospel of the ideal home. It offers, month by month, in wisely-chosen text and pleasing picture, a wealth of ideas and suggestions for the home-lover in search of the ideal house

How to Plan and Furnish

House & Garden begins at the logical beginning—the planning of your house. It shows you the proper setting for every type of house—Colonial, English, Half-Timber, Cement, Tudor, Mission, Stucco, Italian, Mexican, Bungalow—even log cabins are not neglected. It tells you about the fire-places, stairways, windows, roofs and porches, advising with you upon every feature—so that when you call in the architect your problem is half solved, and his services are doubly efficient.

The house completed, new problems await you—and here again House & Garden comes as an experienced friend. It takes you into the homes of others, where varied schemes of decoration and furnishing have been employed. It shows you distinctive effects already achieved, and allows you to make a choice of the best. And, better still, it tells you just how to obtain these effects for yourself.

The Ideal Garden

No less important than the house is its setting of garden and grounds. The ideal home is the right house linked with the right grounds. If either is right in itself, but improperly joined—your ideal has vanished. Every kind of gardening comes in for attention—the raising of flowers and vegetables, winter and summer; growth of hot-house and hardy flowers; sowing vegetable seeds in season; the use of fertilizers; making hot-beds and cold-frames; pruning and grafting—all the hundred and one things the man with the hoe needs to know about. House & Garden constantly shows how harmony may be preserved. The best experts have aided to give this magazine the voice of authority. The wise gardener doesn't guess or take chances. He profits by the other fellow's mistakes and reduces his gardening to a science. House & Garden will aid you to be the wise kind of gardener!

House & Garden for 1916

JANUARY: Annual Building Number. The American home an institution—tabulated cost of building—mission of artistic brick work.

FEBRUARY: Garden Planning Number. Making the plan—the selection of seeds—color schemes, successful grouping and landscaping.

MARCH: Spring Gardening Guide. When to plant—vines and their use—insect pests and their problems—paths—new houses.

APRIL: Spring Building Number. Architecture for the vacation home—water supply—new gardens—the sewage problem.

MAY: Summer Furnishing Number. Summer curtains and rugs—rattan and willow—the young girl's room—cool color schemes.

JUNE: Garden Furnishing Number. Living out of doors—the pergola and garden pottery—flower boxes—pools and statuary.

JULY: Small House Number. Twenty inexpensive houses—economies in fireproof houses—evergreens—the remodeled farm house.

AUGUST: Motor Number. The automobile at home on a farm—garages—motors in suburban life—community improvement.

SEPT.: Autumn Furnishing Number. New decoration tendencies—bath rooms—the man's room—furniture grouping which is distinctive.

OCTOBER: Fall Planting Guide. Directions for planting—bulbs and shrubs—plant storing—trees and their care—the greenhouse.

NOVEMBER: House Planning Number. How to read plans—selection of hardware—new moderate priced homes—the architect's client.

DECEMBER: Christmas Gift Number. 200 suggestions for gifts for the home—the music room a holiday God-send—how to hang pictures.

The Breath of Outdoors

Best of all, House & Garden is not merely a magazine of utility and economy—it is also a vehicle of constant delight and inspiration. The breath of the broad outdoors blows through its pages, whispering the pleasures of country life—telling many of the interesting secrets of nature. Now it is about insect life; again about the habits of bees; again about the migratory birds. Always there are descriptive stories and clear, beautiful pictures about the trees, the plants and the flowers. For the nature-lover, House & Garden is also an intimate friend.

Furnishing Authority

Distinction in furnishing is as you know, far more a matter of information and taste than of income. The readers whose tastes are above the commonplace, will always find in House & Garden, not simply timely information, but what is more, the nice touch of individuality and atmosphere that always distinguishes the carefully planned and executed home. Sooner or later you will be selecting furniture or hangings, or planning to refurnish or decorate, paying out hundreds of dollars for fabrics, finishings and furniture. You will want to know, authoritatively and beyond doubt, the essentials of interior decoration. You will find endless pleasure in searching out those things which have individuality of their own yet harmonize in the home and make it "liveable" and comfortable.

Question of Economy

If you intend to spend $25, $50, or $100, in the beautifying of a single room this year, it will be true economy to get all the ideas possible on the subject beforehand. A mere fraction of this outlay for House & Garden will be worth far more than the entire cost, in the resulting satisfaction to you.

$3 Invested in House & Garden may show you how to effect a saving of $300 or even $3,000 or more

You may have this excellent magazine for a whole year, twelve numbers in all, for $3. Surely this is a good investment when you consider that $3. spent (a tiny fraction of your loss on one ill-chosen chair) may save you $300.00 to $3,000.00 or even more, perhaps, uselessly spent on furnishings that do not harmonize, on gardening which does not please or on building which is not practical or useful.

Special Introductory Offer

A whole year, 12 numbers, for $3. Or, if you **Subscribe Now** beginning with the February Garden Planning Number you may take advantage of our six months' special introductory dollar offer, using the coupon below.

Do not even take time to write a letter. The coupon will do and is easier and quicker. With one stroke of the pen you can solve your building, furnishing and gardening problems, improve your home and its surroundings, make real savings, and bring to yourself some of the real joys of living.

House & Garden

With which is incorporated American Homes & Gardens

Condé Nast – *Publisher*

440 Fourth Ave. New York

"All Indoors and Out"

Introductory Special Offer to Readers of The Garden Magazine

HOUSE & GARDEN, 440 Fourth Avenue, New York City

I accept your introductory offer. Send me five numbers of House & Garden, beginning with the February issue and I will remit $1 on receipt of bill.

OR—I enclose $1 herewith, for which send me six numbers of House & Garden beginning with the February issue.

Name.....

Please write name and address very plainly

Street.....

City.....

State.....

G. 2-16

Mr. Condé Nast is the publisher of the successful magazines — Vogue and Vanity Fair. He has recently purchased House & Garden and more recently American Homes & Gardens, incorporating them into this new magazine.

Every resource that skill and experience can suggest is being turned to account to make House & Garden more complete, and more authoritative and more distinctive than ever before. Read about the remarkable forthcoming issues.

Ferns and Flowers for Dark, Shady Places

Plant early spring flowers *now*. If you wish a bed of large white Trilliums, plant them in early autumn so they will get established before winter.

GILLETT'S

Bloodroot, hepaticas, native lilies, dogtooth violets, native orchids, etc., can be planted in September with the very best results.

Native ferns, which I grow in fifty varieties, give pleasing results when planted in September. I have special fern collections for that dry, shady corner where grass will not grow.

If you wish to develop a natural garden let me assist you. Growing native plants and ferns has been my specialty for 35 years.

Send for my catalog of 80 pages, which is illustrated. IT'S FREE.

Edward Gillett, 3 Main St., Southwick, Mass.

A bed of Trillium grandiflorum growing in the woodland

Concerning David Grayson

IN SARASOTA, Florida, a group of lovers of David Grayson have organized a club, the GRAYSONIANS, to enjoy the open air and the friendly road in the spirit of David Grayson's books. This is their creed:

> **"To be a Graysonian is to be fond of the open air, to love the stretching road, the sun on the shoulder blades, the golden riot of the autumn leaves—to slip away once in a while from everything and go a-wayfaring with joy for a comrade."**

This Winter they are spending evenings around an open fire, reading *Hempfield* aloud—*Hempfield*, the new Grayson novel published by Doubleday, Page & Company. Not a bad plan?

ANDREW McGILL.

Burpee's Seeds Grow

Burpee's
Golden Bantam
Sweet Corn

Five of the Finest Fordhook Vegetables

For 25 cents we will mail one packet each of the following famous Fordhook vegetables which are unequalled in their class. No other small collection would quite so completely fill the requirements of the average garden. These are tested and proved Burpee Specialties that have given the utmost satisfaction wherever used.

Burpee's Golden Bantam Sweet Corn—the Corn of Gold; the earliest and best first-early corn in existence. First named and introduced exclusively by us and has now become the most popular of all extra-earlies. It is the richest in flavor. The ears are from five to seven inches in length, but what it lacks in size is fully made up in productiveness and quality. The stalks can be grown closely together in rows and in good soil will produce two and three fine ears to a stalk.

Chalk's Early Jewel Tomato—The earliest real first-class tomato for the family garden; bright scarlet fruits that are smoothly round, very deep, solid and meaty.

Burpee's Earliest Wayahead Lettuce—The name "Wayahead" was suggested by one of our customers as aptly descriptive of its superiority over all other early-heading varieties. One of the surest headers, and of finest quality throughout a long season.

Burpee's Earliest Black-Red Ball Beet—Remarkable for its regular form, deeply colored flesh and fine sweet flavor. The upright leaves are of a rich purplish color. The globe-shaped roots develop quickly; smooth and free from any woody fibre. Both skin and flesh are of an unusually deep rich red; this intensity of color is retained when cooked.

Burpee-Improved Bush Lima Bean—The pods measure five to six inches long by one and one-quarter inches wide. Even when of full size the enormous beans are of the most luscious flavor; they are thin skinned and truly *delicious*.

25c buys all of the above five of the finest Fordhook Vegetables, which purchased separately would cost 50c. Five collections mailed for $1.00, and mailed to five separate addresses if so ordered. In each collection we enclose free a copy of an interesting new booklet on "The Food Value of Fresh Vegetables," specially prepared for us by a world-wide authority and illustrated with thumb-nail caricatures.

As a Compliment to the Ladies

we shall include with each collection a regular 10c packet of our Fordhook Favorite Asters, embracing all of the choicest double American varieties.

Fortieth Anniversary Edition of Burpee's Annual

"The Leading American Seed Catalog" for 1916

It tells the plain truth about the best seeds, as proved at our famous Fordhook Farms, the largest trial grounds in America. Several novelties of unusual importance are presented which cannot be obtained elsewhere. The front cover illustrates, in nine colors, the greatest novelty in Sweet Peas—the most beautiful "Fiery Cross." The back cover shows two famous Burpee Bantams—Golden Bantam Corn and Blue Bantam Peas. The colored plates show, painted from nature at Fordhook Farms, six other Burpee Specialties in Vegetables, the finest new Burpee Spencers as grown at Floradale, the California home of Sweet Peas, and the unique new Gladioli, Fordhook Hybrids. **This Catalog is mailed free. A post card will bring it. Write today and please mention *The Garden Magazine*.**

Of unusual interest are two special souvenirs prepared by two of the most expert women workers in America, both of which are free to our customers in celebration of our Fortieth Anniversary.

W. ATLEE BURPEE & CO., Burpee Buildings, Philadelphia

THE COUNTRY LIFE PRESS, GARDEN CITY, NEW YORK

In This Number **Planting Tables and Seed Sowing Charts**
Flowering Cherries and Crabapples, By E. H. Wilson

March, 1916 15 Cents

THE GARDEN MAGAZINE

DOUBLEDAY, PAGE & CO., GARDEN CITY, N.Y.

Your Spring Planting Problems Their Happy Solution

IN LAST week's mail came a letter saying, "We want some hardy flowers for a border; ten Rhododendrons for a semi-shady corner, and ten or so evergreens for planting around our stoop foundation. But the selecting of them from a catalog seems such a bugaboo to us that we are half of a mind to give the whole thing up, unless you will come to our aid and make some welcome suggestions."

That letter set us thinking; and so we determined in this advertisement to offer to you, the same suggestions we did to them, and add to it two more.

Do not, however, confuse these suggestions with the usual "special offers," which are so often made up, with the idea of disposing of some slow selling items with just enough good selling ones included, to make them look attractive.

Everything listed here is choice stock, top notch in every particular. The very kinds and quality you would pick out yourself if you came to our nursery.

If these suggestions fail to quite meet your requirements, let us hear from you, telling us what you have in mind, and we will gladly suggest their happy solution.

Hardy Border Suggestions

$7.50 for 60 plants—5 each of 12 varieties

Here is a collection of the fine, old-timey flowers that gave such joy to our grandmothers. No one can sell you better plants.

	Height	Month	Color
Achillea, The Pearl	2½ ft.	June-July	White
Golden Columbine	2 ft.	May-June	Yellow
Larkspur	3½ ft.	June-Sept.	Blue
Tickseed	3 ft.	June-Oct.	Yellow
Chinese Bellflower	3 ft.	July-Aug.	Blue
Campion	3 ft.	June-July	Red
Torch Lily	3½ ft.	July-Aug.	Red & Yellow
Phlox, Miss Lingard	3 ft.	June-Sept.	White
Phlox, LaVogue	3 ft.	July-Aug.	Pink
Sunflower	4½ ft.	Aug.-Sept.	Yellow
Sneezeweed	4 ft.	Aug.-Sept.	Bronze
Beard Tongue	2 ft.	June-July	Purple

Rhododendron Group

$12. for 10 plants—2 each of 5 kinds

This is a choice group of sturdy hybrids full of bloom promise and shipped to you with *all their roots* carefully burlapped.

	Height	Color
Boule de Neige	15 to 18 inches	White
F. D. Godman	18 to 24 inches	Crimson
Catawbiense Grandiflora	18 to 24 inches	Rosy lilac
Kettledrum	18 to 24 inches	Dark Crimson
Sefton	18 to 24 inches	Dark maroon

Evergreen Screen

$36. for 6—six feet specimens

This collection contains six different kinds of the more desirable evergreens, especially adaptable for screening use. They are, every one, specimen trees, full branched and with an abundance of roots. They ought to grow rapidly for you. Let us know if you want a list of the varieties. Our expert says no one can beat them in quality and they are hard to duplicate in price. He ought to know.

Foundation Evergreen Group

$25. for 10 trees—2 each of 5 kinds

This collection is made up by our evergreen expert, with the idea of offering to you, the kinds especially desirable for all-year-round-effects in foundation planting. The list includes five of the low growing varieties for the front row, and five of the taller ones for the back. If you would like a list of the varieties before ordering, we will gladly send it.

Shade Tree Offer

$9.50 for 6—2 each of 3 kinds

Any one who knows shade trees, will say you can't go wrong on these.

	Diameter	Height
Norway Maple	1½-2 inches	11-12 feet
Silver Maple	2-2½ inches	12-14 feet
European Mountain Ash	2 inches	9-10 feet

6 of any one kind for same price

Order Early

It's distinctly to your advantage to order early, so you can get your planting done early, so the roots will get an early grip on the soil.

Julius Roehrs Co

Box 10 Rutherford N.J.

Catalog

Of course, we want you to have our catalog. We have a notion you will find it far easier to order from than the many you have struggled over.

Plant Your Vegetable Garden with Farquhar's Choice Selections

A few of our Specialties for Salads and general use

Beet, Farquhar's Mid-Summer
10c per pkt.; 25c per oz.

Carrot, Farquhar's Intermediate
10c per pkt.; 25c per oz.

Celery, Crosby's Original Boston Market
15c per pkt.; 75c per oz.

Endive, Farquhar's Winter Beauty
10c per pkt.; 30c per oz.

Lettuce, Regina
15c per pkt.; 50c per oz.

Melon, Farquhar's Honey-Drop
10c per pkt.; 50c per oz.

Onion, Farquhar's Selected Yellow Globe Danvers
15c per pkt.; 35c per oz.

Pea, Little Marvel
25c per pint; 40c per quart; $1.50 four quarts.
Postpaid 5c per quart extra

Radish, Farquhar's Early Scarlet Globe
5c per pkt.; 10c per oz.; 35c per ¼ lb.

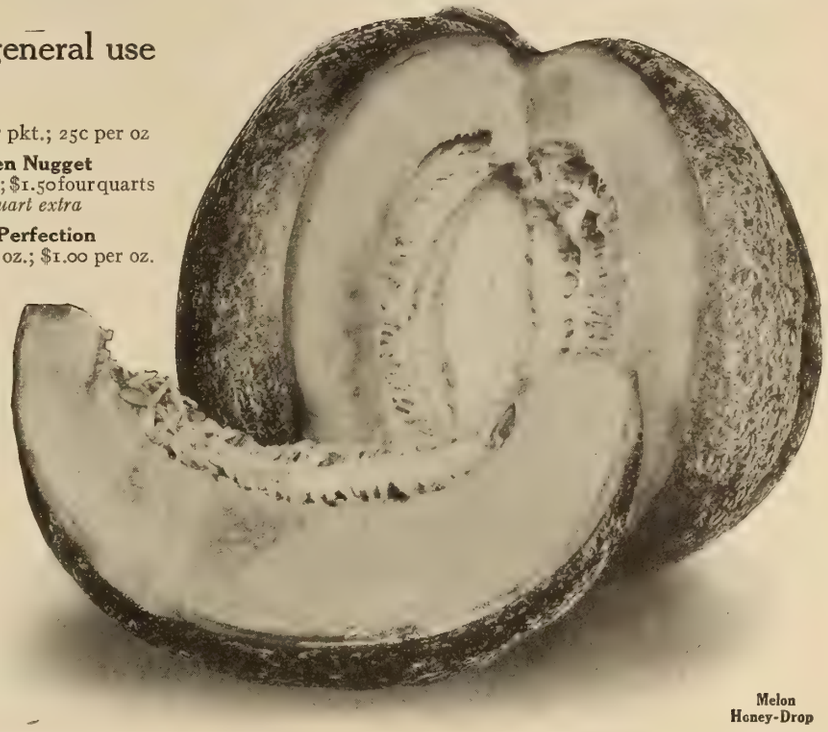
Chicory, Witloof
10c per pkt.; 25c per oz

Corn, Farquhar's Golden Nugget
25c per pint; 40c per quart; $1.50 four quarts
Postpaid 5c per quart extra

Cucumber, Farquhar's Perfection
25c per pkt.; 35c per ¼ oz.; $1.00 per oz.

Write for a complimentary copy of our Garden Annual for 1916

R. & J. FARQUHAR & CO.
9 South Market Street **BOSTON, MASS.**



Melon
Honey-Drop

Red Flowering Dogwood

(Cornus florida var. rubra)

You will surely want one, a few or many of this lovely native dogwood if you have ever seen it in blossom.

Prices, Red Flowering (Rubra)

1-2 ft. each $ .50	per ten $ 4.00	per hundred $ 35.00
2-3 ft. " 1.00	" " 9.00	" " 80.00
3-4 ft. " 1.50	" " 12.50	" " 100.00
4-5 ft. " 2.50	" " 20.00	" " 175.00

Specimens 5 to 8 feet, $3.00 to $15.00 each

Prices, White Flowering

1-2 ft. each $ .35	per ten $2.50	per hundred $15.00
2-3 ft. " .50	" " 4.00	" " 30.00
3-4 ft. " .75	" " 6.00	" " 50.00
4-5 ft. " 1.00	" " 9.00	" " 80.00

Specimens 5 to 8 feet, $3.00 to $15.00 each

Both the Red and White Dogwood are hardy from Florida to Maine. Beautiful every day of the year, wonderful during the blooming season. Brilliant coloring of leaf and berries in the Fall. Graceful along drive or woodland and attractive as a lawn specimen.

Let Us Book Your Order Now and reserve the stock for a future shipping date. Other **Send for Our Catalogue** good things in this catalogue are Tree Andromeda, Cercidiphyllum, Japan Yew, American Hemlock, Japan Barberry, Rhododendrons, Roses, Iris, Peonies, Phlox, Larkspur and Hollyhocks.

THE ELM CITY NURSERY COMPANY
WOODMONT NURSERIES, INC.
NEW HAVEN *(Near Yale Bowl)* **CONN.**

Juniperus

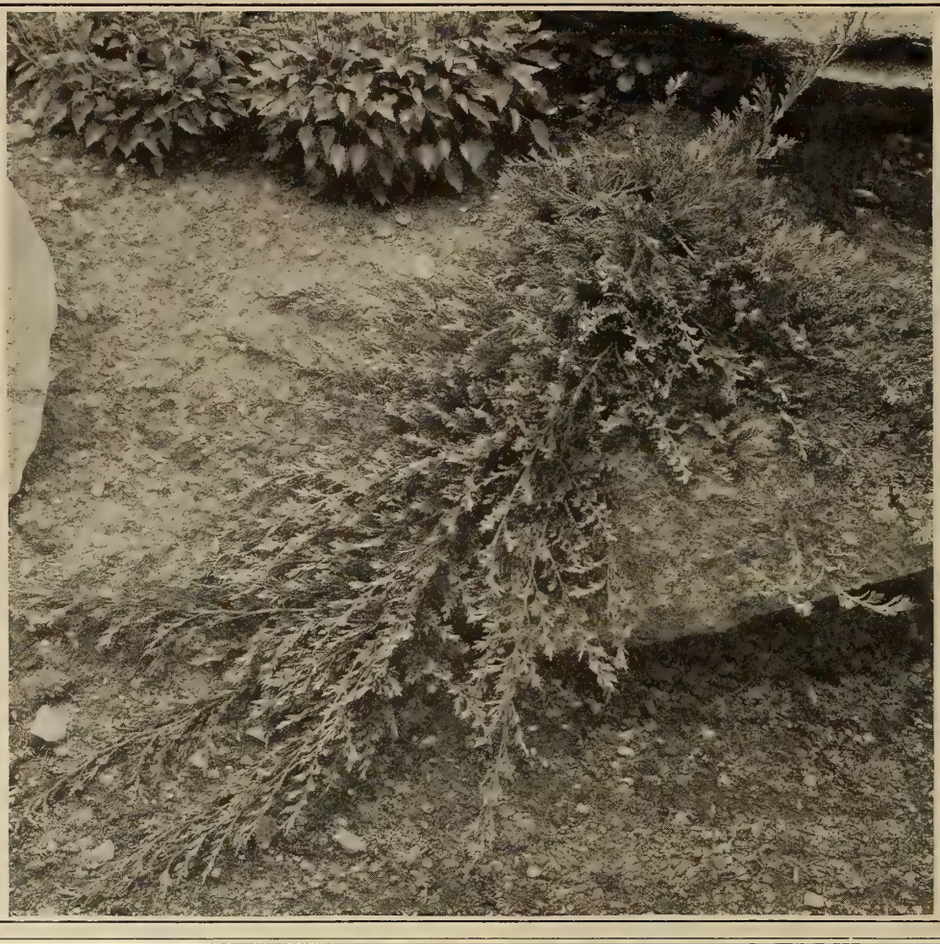
prostrata

The beautiful glaucous Maine variety. A wonderful plant for ground cover or rock gardening.

Well developed plants from the open ground, or in pots.

MT. DESERT NURSERIES

Bar Harbor Me.



WE take pleasure in calling special attention to the two finest varieties of Mr. Wilson's Buddleias.

B. variabilis superba. Compact rosy-violet spikes and handsome foliage.

B. variabilis gloriosa. A new form with rosy pink flowers. Exceptionally good.

Strong plants from 4-inch pots, to flower this year.

Plant Masses of Rhododendron Maximum

wherever you need broad evergreen foliage effects. Use it to set off the house itself or to emphasize a pergola, gateway or the like.

Loaded with great trusses of blooms in the flowering season and lending a note of deep rich green to the winter garden, Rhododendron Maximum deserves a prominent place in every planting scheme.

We offer sturdy, well-bred plants 2 to 3 feet tall at $1.75 each, f. o. b. Holliston; and shall be glad to quote on other sizes at your request.

Ask for new catalog and price list.

Eastern Nurseries

Henry S. Dawson, Manager

Jamaica Plain Mass.

78-1

Here's a Catalogue That Really *Is* Different

because in it we not only give the height of the stock offered but list the exact caliper and diameter as well. Our prices, even when compared with those of imported stock are most reasonable.

The United States Government reported that The Blue Hills are the windiest section East of the Rocky Mountains

As our nursery is located on the Southeast slope of these same Blue Hills, you can depend on the fact that stock raised here (especially Coniferous plants) will thrive even better under conditions that are not so unfavorable.

You should have a copy of my pricelist on hand when you are making out your order.

WRITE FOR YOUR COPY NOW.

BLUE HILL NURSERIES

JULIUS HEURLIN, *Prop.*

South Braintree Massachusetts

High Class Dahlias for High Class Gardens

WE HAVE A LIMITED SUPPLY TO OFFER OF BOTH THE NEW AND STANDARD VARIETIES OF THE HOLLAND-GROWN PEONY-FLOWERED DAHLIAS

We offer these wonderful new types in root form as these are much more satisfactory for the amateur than plants because of the convenience in handling, etc., and because there is no risk of tubers dying as is the case with plants. We do not believe that you can procure any of these *new* Peony Dahlias elsewhere in this country in root form.

Be among the first to secure these exceptionally fine new Dahlias in root form by ordering at once from this advertisement as the stock is limited.

Yellow King

These wonderful free blooming and beautiful new Peony-Flowered Dahlias are the most meritorious ever introduced into this country. This is particularly true of the varieties, Simplicity, Mrs. Warnaar, Bianca, Mrs. J. C. Vaughan, and the new type of twisted petaled, Decorative-Peony Dahlias, Attraction, Sterna, Diana and Yellow King. All these varieties were originated by the creator of the Peony Dahlia, Geisha. Lack of space forbids lengthy descriptions that would justify the merits of these splendid Dahlias. They created a great sensation at our trial gardens all during last season.

We mention the awards as we have found them. They are a guarantee of the superior qualities of these Dahlias.

Furthermore, we wish to emphasize the fact that the Dutch and English judges undertake to give a much more careful judgment than our American judges. Awards are only given after close observation at the trial gardens for a season or more for such characteristics as growth, freedom of flowering, length of stems, attraction, size and color of flowers, etc., which test is much better than that given a flower placed on top of a vase, or with wired stems. Certificates of merit are sometimes given in this country for new Dahlias which have never been seen or observed by the judges previous to the exhibition.

The awards at Haarlem are given by the *Dutch Bulb Growers' Society* and at *Amsterdam* by the *Netherland Society of Horticulture.*

Sterna

Novelty Cactus Peony-Flowered Varieties

These have the most exquisite and beautiful Peony flowers with Cactus petals, having the grace of the Cactus and the good qualities of the Peony. They grow about 4 feet high and are exceptionally free flowered with long stems and large, beautiful and very attractive flowers—without a doubt the finest type of Peony Flowered Dahlias.

Simplicity, (*New*). Elegant flowers of the true Peony-Cactus type with fine, soft lilac-rose color, long stiff stalks of the Peony type. An exceptionally fine variety. Award of merit at Haarlem. **Roots, each $3.50.**

Mrs. J. C. Vaughan, (*New*). Lovely, bright, clear yellow flowers, long stalks. This variety won the Silver Cup at the Royal Horticultural Society trials in England, as the most meritorious Dahlia of one hundred and ten varieties of the Peony Flowered section there represented. 1st class certificate Haarlem, 1st class certificate Amsterdam. **Roots, each $3.00.**

Mrs. Warnaar, (*New*). Giant flowers, creamy white with apple blossom pink, long, stiff stems, an exhibition and garden Peony-Cactus of superior quality. We consider this one an unusually fine novelty. Award of Merit Haarlem. Award of merit Amsterdam. **Roots, each $3.00.**

Bianca, (*New*). Large Peony-Cactus type flowers of a lovely pink lavender color, very free flowering, on long stiff stems. Award of merit Amsterdam. **Roots, each $3.00.**

***Set of roots of above four,* $10.00**

Novelty Peony-Decorative Dahlias

This new type of Peony-Decoratives have twisted and curled petals of the most exquisite and beautiful forms and are entirely distinct from the large flat petaled type of Peony-Decoratives. An exceptional, graceful type of large artistic flowers borne on long stems, very free flowering. Will attract the greatest attention at exhibitions and in the garden.

Attraction, (*New*). Large, elegant flowers of a clear lilac rose color, long strong stems, will be an attraction at every Dahlia Show in the world. It is an exhibition and garden Dahlia of rare merit. 1st class certificate Haarlem. 1st class certificate Amsterdam. **Roots, each $5.00.**

Sterna, (*New*). Very large flowers, correct shape, pale sulphur color, long stems. Award of merit Haarlem. Award of merit Amsterdam. **Roots, each $3.00.**

Yellow King, (*New*). The finest Peony-Decorative Dahlia ever shown, reported the jury last year. Clear yellow, large elegant flowers, long stiff stems. 1st class certificate Haarlem. 1st class certificate Amsterdam. **Roots, each $4.00.**

Diana, (*New*). Large, attractive flowers of very fine form of a crimson and violet reflected color, borne on long stems, greatly admired by everyone. Award of merit Haarlem. Award of merit Amsterdam. **Roots, each $3.00.**

***Set of roots of above four,* $12.00**

Peony-Decorative Dahlias

The flowers of this type have large flat petals of fine reflex forms. Large flowers on long stiff stems, very free bloomers, and exceptionally good keeping cut flowers, good growers and will do well under the most varied conditions, a splendid type for garden decoration. Prices are given for roots.

Berch Van Heemstede, (*New*). Pure yellow with rich golden sheen. Flowers of extra fine form and very free flowering. 1st class certificate. **Each $1.00.**

Great Britain, (*New*). Extra large flowers of a beautiful deep mauve color on long stiff stems, a most attractive Dahlia. 1st class certificate. **Each $2.00.**

Hortulanus Fiet, (*New*). Extra large flower of a beautiful shrimp pink color with salmon and gold suffusion, fine long stems and a wonderful easy grower. 1st class certificate, a prize winner at The American Dahlia Society Show. **Each $1.00.**

Leo XIII, (*New*). Elegant, large flowers, deep yellow color, extra fine forms, free flowering, very attractive. 1st class certificate. **Each, $1.00.**

Hortulanus Witte, Large, pure white, long stems and free bloomers. 1st class certificate. **Each $.40.**

Mrs. Fleers, Large, rosy red, exceedingly attractive, fine for garden or cutting. 1st class certificate. **Each $.75.**

Princess Juliana, Pure white, long stems, free flowering, the best white for cutting. 1st class certificate. **Each $.30.**

Glory of Nikerk, (*New*). Extra large flowers of a beautiful cerise shade of purple violet, a wonderfully attractive, deep spreading flower, fine stems and beautiful cut foliage. One of the finest of recent introductions. 1st class certificate. **Each $2.00.**

Mont Blanc Holland, (*New*). A monstrous, pure white flower. The most attractive of this type. An exhibition and garden Dahlia of unusual merit. Stock very scarce. **Each $3.00.**

Zeppelin, (*New*). Beautiful soft shade with silvery suffusion, fine form, long stems and free flowering. **Each $.50.**

***Set of roots of the above ten,* $10.00**

New Holland Peony Flowered Dahlias

These beautiful and artistic flowered Peony Dahlias are very popular just now, and the demand is so great that only a few varieties of the older sorts are offered in root form generally.

The varieties offered below are a select list of the best of the new and standard sorts. They are free bloomers of large artistic flowers on long stems and are extra good for either cutting or for the garden. Prices are given for roots.

Avalanche, pure white, the best white in this class. Award of merit. **Each $1.00.**

Cecelia, creamy white. 1st class certificate. **Each $1.00.**

Chatanay, color similar to the well-known Chatanay rose, blooms held erect on good stiff stalks. 1st class certificate Amsterdam. **Each $1.00.**

Duchess of Brunswick, red, the outside of the florets being apricot. 1st class certificate. **Each $2.00.**

Electra, bluish, mauve, grows very erect above the foliage, free flowering. 1st class certificate. **Each $1.00.**

Fraülein Budde, soft pink, free flowering. Award of merit. **Each $2.00.**

Garibaldi, scarlet orange shaded; free flowering, and extra for the garden. Award of merit Haarlem. Award of merit Amsterdam. **Each $3.00.**

Loveliness, pale lilac, white shaded. Award of merit **Each $2.00.**

Sherlock Holmes, mauve, splendid form. **Each $1.00.**

***Set of roots of above nine for* $12.00**

Select List of the best of the standard Holland Peony-Flowering Dahlias in root form.

American, apricot orange. 1st class certificate. **Each $.50.**

Bertha Von Suttner, blush rose, with salmon tint. Award of merit. **Each $.50.**

Caeser, canary yellow. 1st class certificate. **Each $.40.**

Dr. Peary, dark mahogany, velvety shaded. Award of merit. **Each $.40.**

Geisha, scarlet and gold, the most sensational Dahlia of all. 1st class certificate. **Each $.50.**

Germania, bright glowing crimson scarlet. **Each $.30.**

Glory of Baarn, (*1906*), soft pink. 1st class certificate. **Each $.30.**

H. J. Lovink, mauve shaded. 1st class certificate. **Each $.30.**

Hortulanus Budde, bright orange red. Award of merit. **Each $.30.**

King Edward, deep purple, unique shade. **Each $.50.**

Paul Kruger, rosy, white striped. **Each $.30.**

Painted Lady, pale rose. Award of merit. **Each $.50.**

Queen Emma, rosy pink, suffused yellow. **Each $.30.**

Queen Wilhelmina, pure white. **Each $.30.**

Sneeuwitje, pure white. **Each $.40.**

***Set of roots of above fifteen choice varieties for* $5.00**

We advise that you send your order at once for any and all the Peony Dahlias because the great demand for this type has always been in excess of the supply of roots. This season, when so many people are ordering early, prompt action is advisable on these offers. *Don't fail to include our Famous Golden Gate Dahlia in your order.* This ideal Suffrage Dahlia was used in preference to yellow Chrysanthemums, last Autumn by the Oyster Bay Suffragists for decorations. (See description of this wonderful Dahlia in our advertisement in the February issue of The Garden Magazine). Price, *roots $.50 each.* All orders will be filled and shipped *prepaid* in rotation, during April.

WRITE FOR A COPY OF OUR CATALOG—describing the rest of our stock, NOW being published

LONG ISLAND DAHLIA GARDENS, Hicksville, L. I., New York

Why Perplex About Your Planting Problems When Our Expert Helps Are Yours For The Asking?

IF YOU want some hardy flowers, shrubs, evergreens or shade trees, why not demand a demonstration from us, that we can give you expert help hints, on what to buy, as well as proof that we have the quality of stock best to buy?

When we make the sweeping statement that if any Nursery stock will grow, ours will, we must have the stock to back it up.

We have just such stock.

It is grown here, in this endurance testing, rugged New England climate, that automatically weeds out the weaklings. It is these sturdy, stocky survivals that we will sell you.

Take the question of roots.

Roots are a plant's engine.

Transplanting is a great test on their power to hill climb, over the shock and change; and go on running without serious slow-downs. Logically, the greater the abundance and strength of the root masses, the surer you are of the results you so sincerely seek.

This soil of ours is particularly fortunate for root development. It is so friable that plants and trees can be dug from it and practically all the finer food absorbing roots preserved. As a result, when you set the stock out, it at once becomes established, and promptly starts strong growth.

When you buy a tree from us, all the roots belong to you, as much as do the tops. We see that you get what belongs to you.

If then, it is stock like this that you want, here is the place to buy it.

Our expert help hints you are welcome to.

Our catalog we ask you to send for.

The Bay State Nurseries
672 Adams Street
North Abington, Mass.

Your Garden Tools

The push-ahead-a-step-at-a-time kind are the ones you want—with high wheels to run easy over rough ground, even with a woman behind the tool, and with adjustments so that a boy or girl can handle it. Tools of this kind will do as much in one hour as you could with old fashioned hoes in ten hours. Easy work and better results.

IRON AGE Wheel Hoes and Seed Drills

Include 38 or more styles and combinations from which any gardener can choose just what he needs. Accurate sowing in rows or hills, perfectly safe cultivation astride young plants or between rows, hoeing, weeding, ridging, opening furrows and covering them. 16 inch wheels. Steel tube frame.

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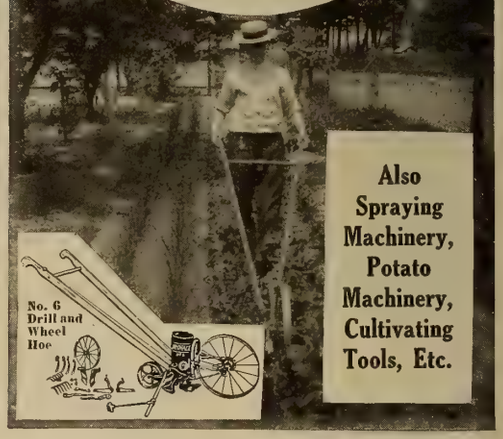

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Contents: Baby Chicks. Breeding and Feeding Charts. Cures of diseases. Timely Poultry Pointers. Plans for poultry houses, trap nests & fixtures. Daily Egg Records (space for keeping). Best receipts for cooking eggs, poultry, etc.

If Purina Chick Feed and Purina Chicken Chowder are used as directed we

Absolutely Guarantee

Double development or money back

during the first six weeks of a chick's life.

Purina Poultry Feeds are sold in checkerboard sacks by leading dealers. If your dealer doesn't sell them mention his name in asking for free poultry book.

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MODERN GLADIOLUS

Thousands of people all over the country know that for over ten years I have been selling the best gladioli at the lowest prices and I want more of them to know it. I keep getting and growing the best varieties and I keep putting the prices down to meet the purses of the people. I am again offering *Fifty* carefully selected gladiolus bulbs of flowering size for Fifty (50) Cents and I "pay the freight" and send my instructive catalogue of new and old named sorts and mixtures. This collection will contain a number of the best named sorts but without marks. Don't forget that *there are no better* bulbs than I offer. I grow them myself and they are especially fine this year.

Send your orders in now.

GEO. S. WOODRUFF, Box B, Independence, Iowa

HONEY DEW THE NEW MELON

Medium late bearing, unequalled flavor, most wonderful keeper, vigorous grower and fruiter, meatiest melon ever originated. Order one packet and start your seed patch this year. Almost round (8 to 10 in.) in form, though longer than it is deep, smooth greenish yellow rind, tough and firm, though very thin. Meat is deep emerald green and very sweet. The **Honey Dew** is the meatiest, juiciest, sweetest of its kind and honestly honey flavored. No other name good enough or exact enough to describe it. Price per dozen seeds, 50 cts.

GALLOWAY BROS. & CO., Sole Distributors
Westfield Ave., Waterloo, Iowa

DWARF TREES

APPLE
PEAR
PLUM
CHERRY
PEACH

A Strong Argument for Dwarf Trees—4 feet high, 22 fruits.
This engraving is from a photograph taken August 8, 1914, and sent me by Mr. C. S. Godfrey of Taunton, Mass., in a letter dated March 19, 1915, a part of which reads as follows:
"I am inclosing picture of one of the (dwarf) trees bought of you. It is a Yellow Transparent and is four years old I believe. Possibly this is not exceptional, but the little tree, standing about four feet high with twenty-two apples on it attracted considerable attention last summer"

A Dwarf Yellow Transparent Tree will cost you only 50c.

These charming little trees are a perfect godsend to the suburbanite who has looked forward to sometime having room for "real" trees, bearing "real" fruit. With the Dwarf Trees you need not wait for this larger space on which to plant the large, standard trees; **you have room enough for a Dwarf Fruit Garden right in your own yard.**

If you follow the directions of our catalogue, in a space 50 by 50 feet you have room for 4 peach and 2 pear trees trained to espalier form, 7 apple, 7 pear, 7 cherry and 7 plum trees in bush form, 8 apple trees in horizontal cordons and 31 apple trees in upright cordons, besides three full rows for berries and currants. **All this space would be needed for the full development of just one, big, standard apple tree!**

These Dwarfs will bear in from one to three years, according to the variety and the care you give them; they are right near the ground where you can always care for them without climbing a long ladder, and if the baby climbs one and falls out, he hasn't far to drop!

Our **ILLUSTRATED CATALOGUE** of 48 pages gives directions for training to the different forms. Write for it now—it's free.

Perhaps you have never grown any Dwarf Fruit Trees and would like to try an assortment? To enable you to do a little experimenting and at trifling cost, we make the following **"Dwarf Trial Collection"** for **only $1.75.**

1 Dwarf McIntosh Apple tree 2-5 feet	$ .50
1 Dwarf Bartlett Pear tree 2-5 feet	.40
1 Dwarf Montmorency Cherry tree	.60
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1 Dwarf Elberta Peach tree	.40
List Price	$2.50
In Collection, F. O. B. Geneva,	1.75

We Grow a Full Line of
STANDARD FRUIT TREES
and Make a Specialty of
Orchard Engineering
for Prospective Planters of
Large Commercial Orchards

The Van Dusen Nurseries

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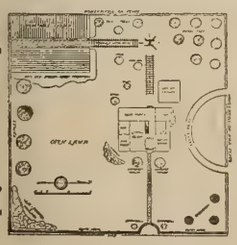
LANDSCAPE PLANS

It pays to have a plan



Will show you *exactly what to order* from the nursery agent or catalogues and exactly how to plant it to make your grounds

A Perfect Landscape Picture

My plans are not a fancy sketch but made for your own grounds, by one with years of experience, at prices within reach of all; for ordinary places can be furnished by mail, so plain any one can do the planting. Prices low as $4. Estimates free.

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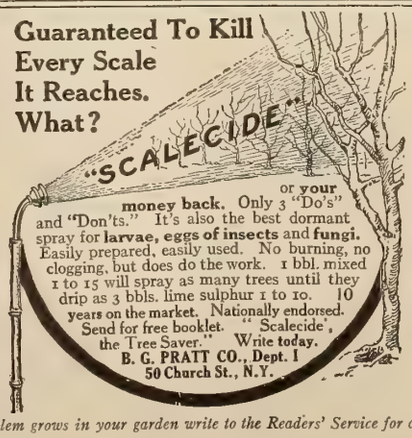

or **your money back.** Only 3 "Do's" and "Don'ts." It's also the best dormant spray for **larvae, eggs of insects** and **fungi.** Easily prepared, easily used. No burning, no clogging, but does do the work. 1 bbl. mixed 1 to 15 will spray as many trees until they drip as 3 bbls. lime sulphur 1 to 10. 10 years on the market. Nationally endorsed. Send for free booklet. "Scalecide", the Tree Saver." Write today.
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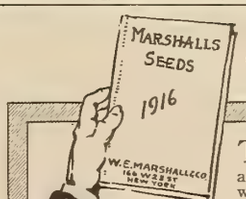

THIS book will solve the problems of your flower and vegetable gardens, whether you are an amateur or professional. It contains a list of all the standard and specialty farm and garden seeds, as well as poultry supplies and will greatly assist you in your Spring planting.

Write to-day for your copy—its FREE

W. E. MARSHALL & COMPANY
166 West 23rd Street New York

If a problem grows in your garden write to the Readers' Service for assistance

Three Sash Junior Frame, 102 x 38½ inches, $11.55

$5.25 Buys a Complete Junior Cold Frame

IT IS a veritable little portable greenhouse, having ample room to grow oodles of flower and vegetable plants for early setting out.

If you also want to grow some early lettuce, radishes and the like, then you would best have one of our two or three sash frames, costing $8.40 and $11.55.

When you see the fine grade of cypress of which they are made, the strong iron corner cleats with which they are bolted together, and the thorough way they are painted, you will wonder how we can make such frames and sash for the price. We make them just as thoroughly as we do our greenhouses.

One thing certain, if you are going to have a garden, then have an early one.

The only safe and sure way of surely having it early is to start your plants early in our frames.

This is a true statement in which any good gardener will back you up.

There is no need to hesitate about buying them, fearing you may not know how to get results. We will send you our Two P's Booklet, which tells all the hows, whens and wheres you need to know. Its planting time table you can go by.

Send for the Two P's. Aside from its "how-to" directions, you will find all six sizes of our frames described and priced.

Lord & Burnham Co.

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GREENHOUSE?

Is the cost bothering you?

If you have the ground, we have the organization that will design and construct your Greenhouse with the greatest economy of cost and time. Using none but the best of materials and construction.

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My new 1916 catalog, containing three Special Offers and over 85 choice named varieties, is now ready and will be mailed to you upon application. IT WILL PAY YOU TO ORDER NOW FOR EITHER IMMEDIATE OR FUTURE DELIVERY.

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Spring is coming, and with it insects and pests of all kinds.

We have ready for you

ORMOCIDE

the most efficient and deadly of all insecticides. It is easy and clean to use, leaves no stain, and is non-poisonous.

You can spray fruits and vegetables until the day they are gathered.

Besides, it is very economical, 1 gallon making from 25 to 100 gallons of spray.

Do you not think it would pay you to send us 25 cents so we can mail you our literature and trial bottle holding enough for you to give it a thorough test?

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Plant the old-fashioned favorites—larkspur, sweet william, pinks, phlox, chrysanthemums and the others. Buy them ready to *bloom*. Hicks-grown plants are guaranteed to grow satisfactorily, and to flower the first year.

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Extremes of Types to be Found Among New Primulinus Kunderdi

In our Feburary ad we showed you the illustrations of Ruffled Gladioli Kunderdi, and told you of our beautiful new race of Primulinus. The above illustration will give you an idea of the remarkably varying and orchid like forms to be found among them. They are the results of our crossing the beautiful New Kunderdi Types with Species "Primulinus", and are very different from all other strains of Primulinus Hybrids.

Our new catalog of 28 pages, 14 illustrations, contains a list of 36 very select varieties, from this magnificent new race. It also describes a long list of our other varieties, 168 in all and our grand unequaled collections, in mixtures and separate collections. It is free for the asking and you ought to send for a copy, whether you buy of us or not, as it contains the most complete and reliable cultural instructions, and other valuable information.

ADDRESS THE ORIGINATOR

A. E. KUNDERD GOSHEN, INDIANA

Fottler, Fiske, Rawson Co.

Seed Annual for 1916 is compiled especially for those interested in Gardening. Some of the special features:

Summer Flowering Bulbs

It takes 42 Pages to describe and illustrate them with half-tones.

Dahlias and Gladiolus

We are specialists in these, having the largest list in this country; it takes *34 pages* to describe these with 54 half-tone illustrations.

Six pages are devoted to *Asters* and *Sweet Peas* and 33 pages to *Flower Seeds* comprising the very best in existence.

Vegetables require 60 pages to describe and illustrate with half-tones.

Thirty pages are devoted to our Plant and Shrub Department. This includes Roses, Perennial Plants, Shrubs, Vines, Hedge Plants, Evergreens, Fruits.

Twenty-four pages we devote to Fertilizers, Insecticides, Spraying Implements, Lawn Mowers, Sundries, etc.

Seven pages to Poultry Supplies.

Franklin Park Lawn Seed

Free from Chaff. The cleanest. The highest Purity Test. The highest in price. The cheapest in the end. If you will mention this magazine we will mail the Garden Annual free to you.

FOTTLER, FISKE, RAWSON CO., Faneuil Hall Square, Boston, Mass.

Red Radiance

A Wonderful Rose for the Garden

No variety exceeds in general merit this new Rose for garden planting. It is a splendid, even shade of clear red; flowers large borne on long stems. Strong two-year-old pot plants $2 each.

New Bedding Roses of Great Merit

Crimson Champion blooms freely the entire season. Originated by John Cook of Baltimore. Awarded Silver Medal by American Rose Society. Two-year-old pot plants $1.50.

Other New Varieties are described and pictured on pages 26 to 29 of our new catalogue, which devotes eighteen pages to the many roses of recent introduction and the old favorites.

Write for Our 1916 Catalogue

which is a complete guide to the best Roses, Shrubs, Hardy Plants and Bedding Plants. A copy will be sent free on receipt of your name and address

A. N. Pierson, Inc
CROMWELL GARDENS
Box A, CROMWELL, CONN.

Let us help you plan and plant your garden this year. Whether the planting is small or large you may profit by our experience in landscape work.

One Sure Way to Overcome Your Spring Planting Worries

THE one sure way to surely avoid wearing the annual spring worry wrinkles, is not to put off selecting and ordering *now*, the things to plant that you are so soon going to need. Why do so many first need to be stirred by the return of the daffodils before making a move toward selecting and ordering their needed shrubs, evergreens and shade trees?

Last Summer, ten chances to one, you may have planned what you would do this Spring, in a planting way. If so, then you now know your wants.

With our catalog before you, the ordering is the least of your worries. If however, you put off ordering until the time the "put-offs" order; then the rush of the season will be on and you will have to take your turn with the rest, no matter where you buy.

But on the other hand, if the planting question is all quite new to you, and *what to plant; when to plant;* and *where to plant* are perplexing uncertainties; then let us help you personally.

One of us will give special attention to your queries and gladly advise the best solution of your planting problems.

One thing certain; *there is no finer stock to be found anywhere.* No matter whether you want one or hundreds of any particular thing, we have it for you, *uniform in quality throughout.*

Our prices are neither low nor high. They are exactly what you would expect to pay for such absolutely dependable stock.

Shrubs

DO YOU want a group for hiding your foundations? Then let us suggest some tall growing kinds for the back; a few of the medium heights; and for the front, the desirable low growing kinds.

Such a collection will insure you a series of blooms the season through; and a sprinkling of cheery red berries during the bleak winter.

Write us the space to be planted and we will promptly advise what to plant and its cost. Tell us whether the space is in the sunlight, or shaded by the house or by trees; also the nature of the soil.

Shade Trees

JUST because some of your friends have been discouraged at the slow growth of their shade trees, it is no reason for your feeling anything but hopeful. Such trees as maples, lindens, catalpa, pin oaks and the like surely are not slow growing, *provided* they have the necessary roots when transplanted.

But that word *provided* is the vital word. Our trees *are so provided.* Come to our nursery and we will gladly dig up any tree you say and prove it to you.

Evergreens

LATELY there has been a great awakening to the beauties of evergreens, and a recognition of their hundred and one uses.

From the natty little dwarfish ones; to the big sky reaching kinds; there is a range of shapes and colors that is a revelation. There are at least a dozen shades of green; not to mention the golden hues, the blues and silvery colorings.

Surely you will want evergreens. A choice lot of stock we have for you.

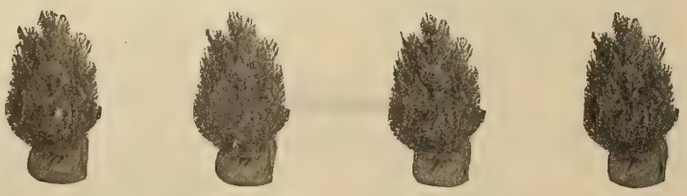
Specials

IN A big nursery like ours, covering several hundred acres, we are bound, occasionally, to have left odd lots of stock, which, on account of their small number, we do not list in our catalog.

Among these will be some extra large, well matured specimens which are just the thing for immediate effect.

Write us for information about them; also for prices. You will be agreeably surprised at the great value offered for the moderate price asked.

Send for our catalog. Take every advantage of early ordering.



Can you use half a dozen or more of these fine, symmetrical globe evergreens, standing 2½ to 3 feet high in their stocking feet, and having a compact mass of strong roots? Write for prices.

Framingham Nurseries
W. B. WHITTIER & CO. - FRAMINGHAM, MASS.

The "Science" of Growing Asters

OF ALL annuals, Asters unquestionably yield the greatest return for the time and money expended. I use two packages of mixed colors every season, and for three years have had a most attractive mass of color in my Aster bed.

The seed should be sown early in March, either in coldframes or in shallow boxes in the house. Mine I plant in boxes, thinly cover with soil and place panes of glass over the boxes. I keep the little plants at an even temperature, not very warm. Plenty of sun is needed, but stronger roots will develop if the soil is kept cool. When they attain their second leaves (perhaps in six weeks or two months after planting) they are ready for transplanting into two-inch pots, one plant to a pot. Here they become a perfect mass of rootlets until it is time to set them in their permanent bed in the open ground. Last year I transplanted eighty-three from my two packages of seed.

This extra "fussing" pays in sturdier plants and greater bloom later on, however, and renders the plants practically immune from the black beetle. In the years I have raised Asters they have never been afflicted with this pest and I understand the method of "pot-grown" plants is largely the reason.

The permanent bed must be well prepared. Last year, after removing the sod, I had well rotted stable manure spread over it. This was put on thickly and for a foot down it was forked with the soil until of a powder-like fineness. A small hole for each plant was dug with a trowel and a space of one foot was allowed between the plants. Water was poured in each hole, a little soil sprinkled over and the plant set in just as it came from the tiny pot, the soil being pressed in firmly around the roots. By watering the roots in this way there is no necessity of protecting the plants from the sun.

Whenever the soil became caked, I would go over the bed with a hand fork, digging up the soil. This treatment was continued until the leaves of the plant were of sufficient size to meet. The plants began to bloom about the first of August, were as large as chrysanthemums, on strong, tall stalks, and lasted for six weeks.

New York. CAROLINE HALSEY STOOTS.

Winter Nature Study

NATURE study in winter time ought to include those subjects which belong to the season and which may be studied more easily than at any other time. I always choose, in my work with children, to make a study of the shapes of trees, their bark and the buds, for the deciduous trees unhampered by a leafy covering show their structure better in winter than at any other time of the year. All experiments with germination and testing of seeds, soils, and the weather properly come during January, February and March.

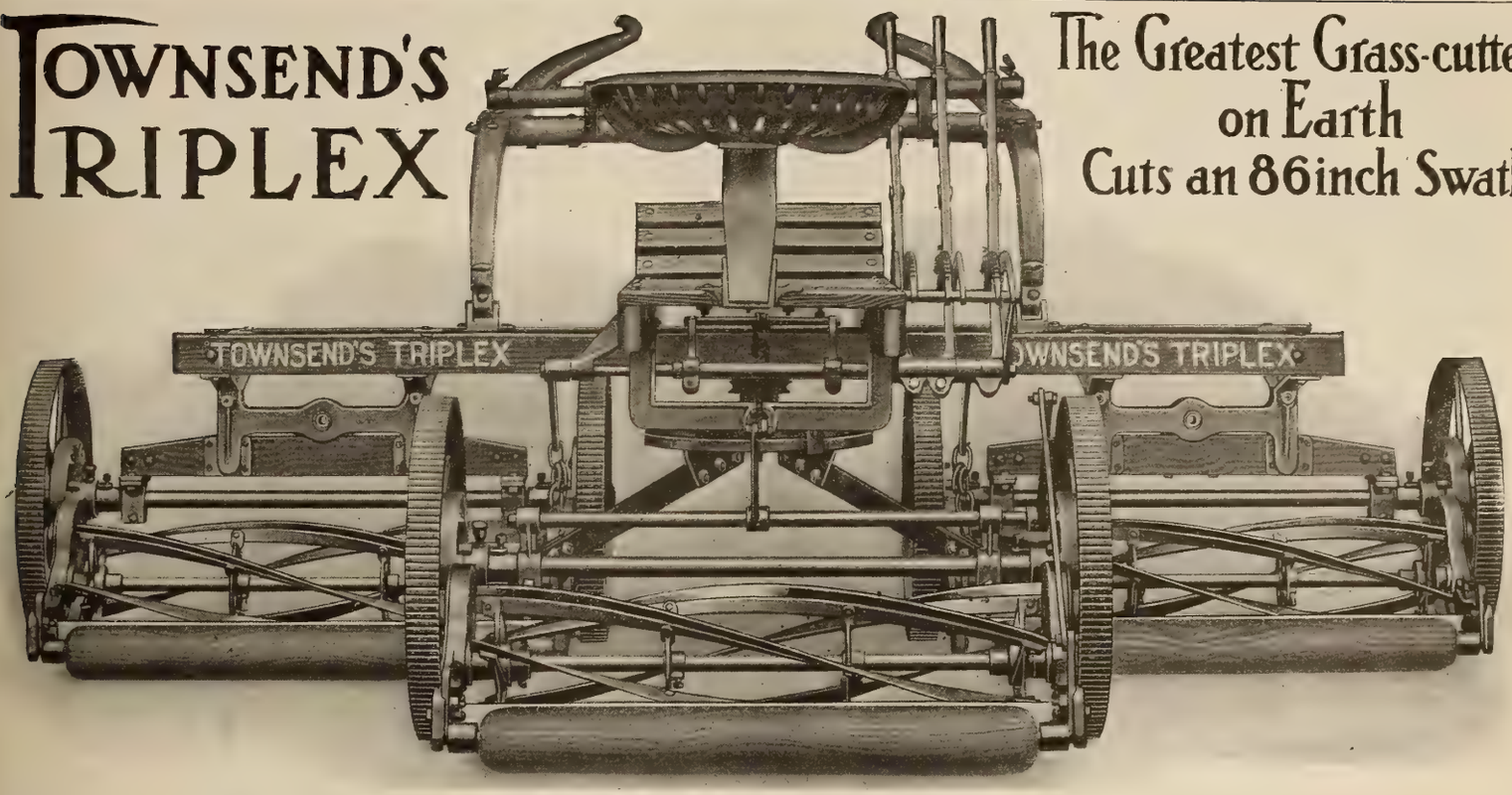
I take small groups of children out into the country, or to nearby parks for the tree study. Have the children take pencils and note-books to jot down notes in. Study character of bark; girth of trunk; branching, opposite or alternate; position of buds and general shape of tree. Such trees as the Shagbark, with its loose hanging bits of outer bark; the Dogwood with its close, alligator-skin bark; the Striped Maple with its prominent light-shaded lines in the bark; and many other trees are best to choose because of striking characteristics. Naturally one will choose the trees most common to the place or those most accessible to a given school or home. But even then pick out trees which form vivid images in a child's mind.

I love too the forcing out of tree buds for pleasure and study. When these blossoms appear long before their time much is added to the study because of the miracle of real tree buds coming out while snow is on the ground. Choose buds of fruit trees, red maple, poplar, willow and other early blooming trees. Cut off portions of terminal branches about two or three feet in length, put these in warm water and place in the dark for about two weeks, then bring to the light. These blossoms will be a joy in your own living room or in the class room.

New York. E. E. SHAW.

TOWNSEND'S TRIPLEX

The Greatest Grass-cutter on Earth Cuts an 86 inch Swath



FLOATS OVER THE UNEVEN GROUND AS A SHIP RIDES THE WAVES

One mower may be climbing a knoll, the second skimming a level while the third pares a hollow

Drawn by one horse and operated by one man, the *Triplex* will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse drawn mowers with three horses and three men. (We guarantee this.)

Does not smash the grass to earth and plaster it in the mud in springtime, neither does it crush the life out of the grass between hot rollers and hard hot ground in summer as does the motor mower.

Write for catalogue illustrating all types of Lawn Mowers

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What *We* Can Do For *Your* Home Grounds

With practical suggestions, and complete plans if desired, we are ready to serve you carefully, efficiently, promptly—

—In the laying out of a small garden.
—Re-arranging the grounds about the home you now occupy.
—Planning and planting about the home which you intend to build this year.
—Landscaping the large estate, including grading, road building, and complete planting for immediate results.

For these varied purposes we have superb specimen Shade Trees, Evergreens, Shrubs, Roses, Perennials, and will select only those that fit the needs of your grounds.

Let Us Send You Our Catalogue

This new edition tells more about what we can do for your home grounds, shows picturesque plantings, and gives suggestions for making your place a home of distinction.

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Gladioli
—EXCLUSIVELY

Special Offer
This year everyone is planting—and rightly so
"AMERICA"
a beautiful pink — immense size — waxlike texture.
100 bulbs $1.50
1000 " $12.00

***Glad* flowers of the Summer garden—**

Brilliant — showy — effective — dainty — soft — alluring — every shade that blows and grows.

Masses of color out of doors— unsurpassed for house and table decorations.

Cedar Acres bulbs are the choicest grown.

Beautiful illustrated booklet—free. Describes the new varieties and gives full planting instructions.

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—the dependable guide to success with flowers, vegetables, hardy perennials, annuals; vines, shrubbery and pot-grown roses.

240 pages, brimful of helpful suggestions which make practical selection easy. Tells when, where and how to plant. Contains hundreds of illustrations—many in natural colors. Contains many special selection offers on finest varieties such as

MICHELL'S "Superb" Mixture of Spencer Sweet Peas

(illustrated in natural colors). We blend this ourselves from the finest grand waved Spencer varieties, including a number of the newest hybrids in all exquisite colors. Test this mixture, sure to give unsurpassed satisfaction — 10c packet, 20c per oz., 60c per quarter-pound or $2 per pound, (postpaid).

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In addition to guarding your property against vandalism, tramps, prowling thieves and mischievous boys, an Enterprise Fence will significantly increase the *actual value of your properly.*

Let Us "Blue-print" Your Needs

Enterprise Fence base is cast iron, thus eliminating corrosion and rust. We have our own foundry. Some other ornamental iron fence factories do not have their own foundries.

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Cannot we "blue-print" your needs for you without cost, without obligation? Write to-day, also ask for our new photographic catalog to

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Direct from our Nurseries
12 PREPAID STRONG PLANTS $1.00

KING'S OLD FASHIONED FLOWERS

Selection of 15 varieties such as Hollyhocks, Phlox, Larkspur, Foxgloves, etc.

Send for catalog NOW, and take advantage of offers for early orders.

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The Insecticide that Kills plant Lice of many species

A SPECIFIC REMEDY FOR INSECTS ON HOUSE AND GARDEN PLANTS—EFFECTIVE IN ITS ACTION—EASILY APPLIED—FREE OF THE DISAGREEABLE FEATURES OF MOST INSECTICIDES.

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The most complete as well as the most interesting manual on this subject. Gives full instructions on everything to do with the care of bees from the choice of tools to the removal of the honey.

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A Garden Full of Gladioli for $1.00

The Gladiolus is one of the most satisfactory flowers grown because it blooms continuously when it is cut and put in water, just as well as when in the ground.

There is no reason why every family cannot enjoy this grand flower, for the simple reason that it is as easy to grow as the potato.

You can have them in bloom from July to frost if you plant a few bulbs each month from April to July.

For only **ONE DOLLAR** we will send **75 Bulbs** of our **Grand Prize** Mixture, which covers every conceivable shade in the Gladiolus kingdom.

Write today, enclose Dollar Bill, Stamps or Money Order and secure this splendid collection of Gladiolus Bulbs, sent prepaid to your home anywhere in the United States with our 1916 Spring Catalogue.

OUR 1916 SPRING CATALOGUE
contains complete descriptions and prices of **"New and Rare Gladioli," "Exhibition Gladioli"** and **"Standard Named Gladioli."** Sent free upon request.
Kindly mention "Garden Magazine" when writing.

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EFFICIENT AND RELIABLE

Everything Worth Planting in our Quality First Stock at a Reasonable Price and Your Requirements Furnished Complete

A grouping of our fine Evergreens, Cedrus Atlantica and Blue Spruce on a Long Island Estate

Exterior Planting Decorations

is the title of a new booklet just published—of special interest to **Owners of Country Estates, Park and Shade Tree Commissions, Superintendents, Gardeners** and others planting **Choice Evergreens, Trees for Boulevard and Park Planting, Rhododendrons, Roses, Shrubs, Vines, etc.** It is *something more than a Catalog* and will be sent you free on request for Booklet M.

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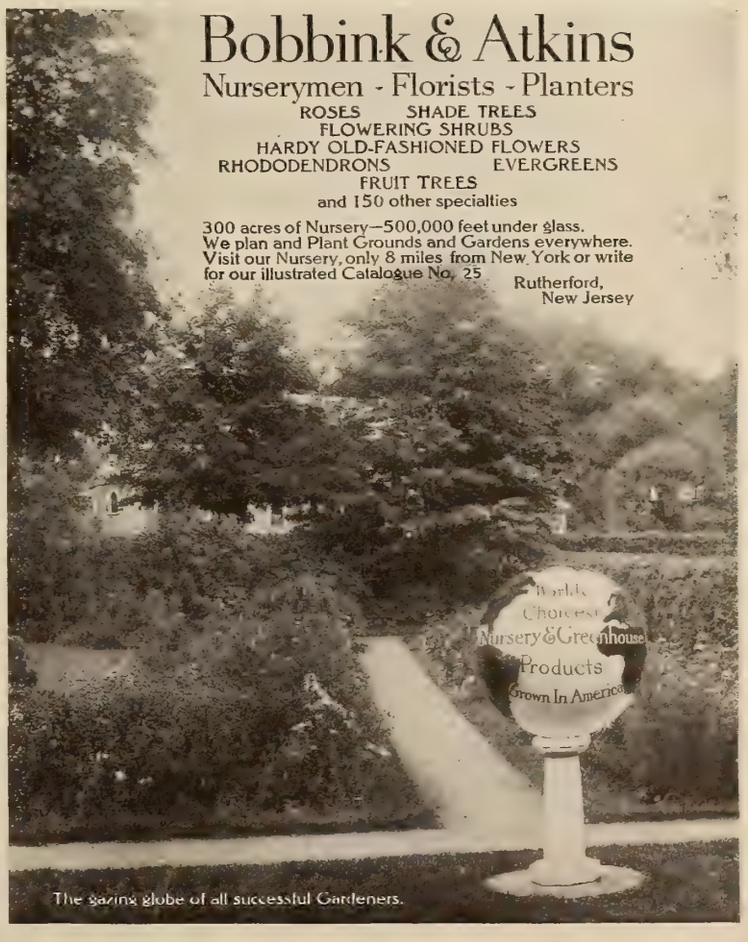

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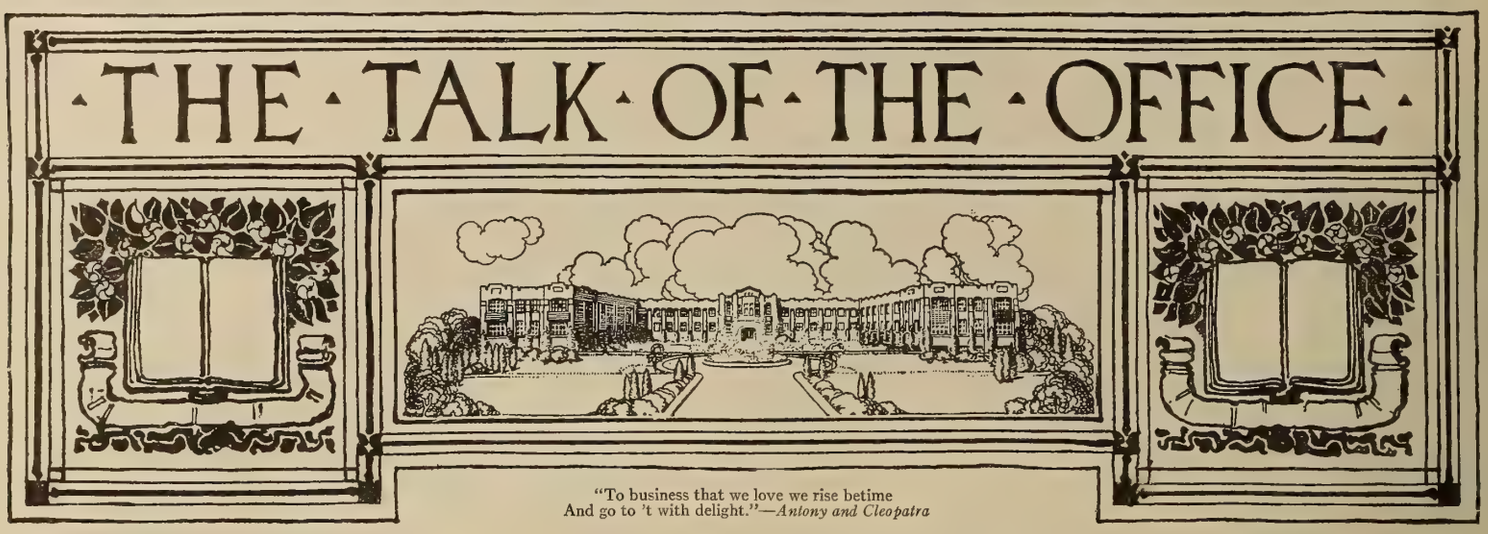

"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

A NEW KIND OF BOOKSTORE

About the first of March a bookstore will be opened at 38th Street and Fifth Avenue. It will be called "The Lord & Taylor Book Shop. Conducted by Doubleday, Page & Co."

In starting this bookstore we appreciate that we have a great disadvantage—or advantage, as the case may be—in that we have the courage of ignorance; and we hope to try out some new ideas which, perhaps, if we had had more experience, we would never have the zeal to try.

Like other publishers, Doubleday, Page & Company have spent hundreds of thousands of dollars to induce readers to go into bookstores to buy their books, and it is nothing new for publishers to keep bookstores. Charles Scribner's Sons, G. P. Putnam's Sons, E. P. Dutton & Co., and many other publishers have done it for years; but it is new for a firm of publishers to go into a coöperative arrangement with a department store to conduct a rather different sort of bookstore, both houses pledging themselves and their resources to make it a success.

We are most anxious to make it clear that this is not an attempt to supersede the regular bookstore; our main endeavor will be to attract the attention of people who are buying other things to form the habit of buying books. If any of our ideas work out with success, our friends the booksellers will be welcome to all the experience we may acquire, and to acquire it we expect to spend a good deal of thought, time, and money.

One thing interests us very much to try out. After spending a good deal of time visiting bookstores in various parts of the country, we have been struck with the fact that the floors of most bookstores are used for counters, long or short, covering practically all the floor space, on which are piled books in great quantities. The customer walks in the aisles between the counters, examines and selects his books, standing on his feet. We have watched many tired readers going over books in this uncomfortable position. This custom is, of course, not universal; but most books, we claim, are bought standing.

We are going to try the experiment of keeping our floor comparatively free of counters but filled with chairs so that customers may sit down and buy in comfort. There will be a big library table in the middle of our book shop—and our shop will not be large, by the way, but we hope, cozy. There will be other tables and many comfortable places for the booklover to look and read, and not as he stands or runs.

Do book-buyers appreciate the difficulties of the average bookseller in the matter of stock? How many people realize that about 8,000 new books are published each year in these United States, and that this has gone on for many years? A new shop like ours, which starts *de nouveau*, faces a heartbreaking problem to have every particular book that every particular person wants and still not fill the shop with thousands of volumes that nobody wants.

There can, of course, be only one answer to this problem, we are going to do our best, and what we haven't got, we will get as quickly as possible if a customer intrusts us with the order; and we shall simplify our problem somewhat by eliminating what we regard as the least necessary classes of books—books which are carried in large stores devoted exclusively to such books, like medical, technical, rare and scarce, second-hand books, and books in foreign languages.

Another problem: The criticisms of book salesmen or saleswomen are constant and severe, and perhaps justifiably so. Here again we must refer to the immense flood of absolutely new books which the salesman must know, to say nothing of the old books. We are going to try to solve this problem as well as we can by having specialists in charge of separate departments and we shall announce the name of the head of each department, to help the visitor to know who is who. All this is nothing new, but we are going to try to keep these departments separate and up to the moment.

There will be a trained librarian whose business it will be not to sell books, but to answer questions that one goes to a library to have answered. We shall call it the "service desk," and she will have at her hands all the bibliographical tools of her trade and will supplement the information which the department heads usually give.

Another new effort will be made in a magazine expert—a person who knows something more than the names and prices of current magazines. He is expected to know the character and individuality of all the magazines and what they are printing, and, with the help of a cumulative index, what, where, and when separate articles or groups of articles have been published.

Fortunately for Doubleday, Page & Company, upon whom is laid the actual conduct of the Lord & Taylor Bookshop, there exists in the building a new Chickering Hall, a reincarnation, so to speak, of the old Chickering Hall, where so many delightful musical and literary events took place in the old days at 18th Street and Fifth Avenue. In this charming little theatre, which contains spacious seats for 299 people, the Bookshop plans to give many interesting and, we even hope, unique entertainments.

For instance, we shall have a Kipling Day, a Stevenson Day, an O. Henry Day, a Conrad Day, when speakers of reputation will read from and tell about these and other distinguished authors, showing portraits on the screen, places made famous by the books, the homes of the authors, with letters and manuscripts which will bring home to the reader the real personality of his favorite writers.

Of great importance will be the Children's Department and Children's Day in the Chickering Hall, but of this more hereafter. Many other things are planned to make the Bookshop interesting, and to help to turn people aside in a busy corner to enjoy what may be a new interest in their lives.

Use it in your vegetable garden from start to finish. Spread it broadcast. Sow in your drills. Dig it around your plants. The new Alphano Book tells of wonderful celery results secured by using it.

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Its base is a rich, sweet soil humus, thoroughly dried, to which are added sufficient nitrogen, phosphate, lime, and plant vitalizers to make it a completely balanced soil ration. But that isn't all—it is also inoculated with Alphano Inoculant, so that when sowed in the drills with your peas, beans or sweet peas, it will inoculate them with the nitrogen gathering germs, causing nitrogen filled nodules to form on the roots, for the plants to feed on.

Results are truly surprising. If your luck with sweet peas has been poor, plant them five inches deep, mixing soil in the drills with $\frac{1}{3}$ Alphano. When the vines are up, keep well watered, but don't hoe dirt up around them. It often causes stem rot.

For all your flowers Alphano is ideal as you can easily work it in around the roots and it at once becomes a part of the soil. No offensive lumps and chunks to break up.

For your lawn, it is a regular wonder worker, in the way it stimulates growth and forms a sort of soil sponge, drinking in the moisture as a resistant against dry weather. Being odorless, you can put it on any time. It can at once be raked in out of sight.

When considering our dry, sweet Alphano Humus fortified with its abundant plant foods, and liberally inoculated, don't confuse it with the wet raw humus, sold under various brand names. When buying raw humus you pay for water at Humus rates, and run the risk of making your soil injuriously acid.

Buy Alphano Humus, and make sure you get what you buy. Send for our new Alphano Book. It is filled with many helpful hints on the care and fare of your garden and lawn. It is abundantly illustrated, showing many interesting and convincing Alphano results.

7½ feet high seems like a fairy story for peas. But there are the peas and there is the man who grew them. You can judge for yourself.

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THE GARDEN MAGAZINE

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12 Popular Gladioli

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1 each of the above choice varieties, 12 in all	$0 50
3 each of the above choice varieties, 36 in all	1 35
6 each of the above choice varieties, 72 in all	2 50
12 each of the above choice varieties, 144 in all	4 50

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	100	1,000
Mixed Gladioli. Good quality; all colors	$1 25	$11 50
Red and **Scarlet Gladioli.** Splendid for massing in shrubberies and borders	2 00	

XXX MIXTURE

This is a specially fine mixture, made up of over 100 fine named varieties, and includes also a good percentage of Childsii Hybrids. Just the stock for those who want only the very best that can possibly be had. We have sold hundreds of thousands of this mixture at $3 per 100. We have now improved the quality and reduced the price one-third. 35 cts. per doz., $2 per 100.

The prices for Gladioli do not include transportation from Pittsburgh. If wanted by parcel post, postage must be paid by purchaser. Six bulbs supplied at dozen: 50 at 100 rate. All prices made subject to stock being unsold when ordered. Order quickly to avoid disappointment.

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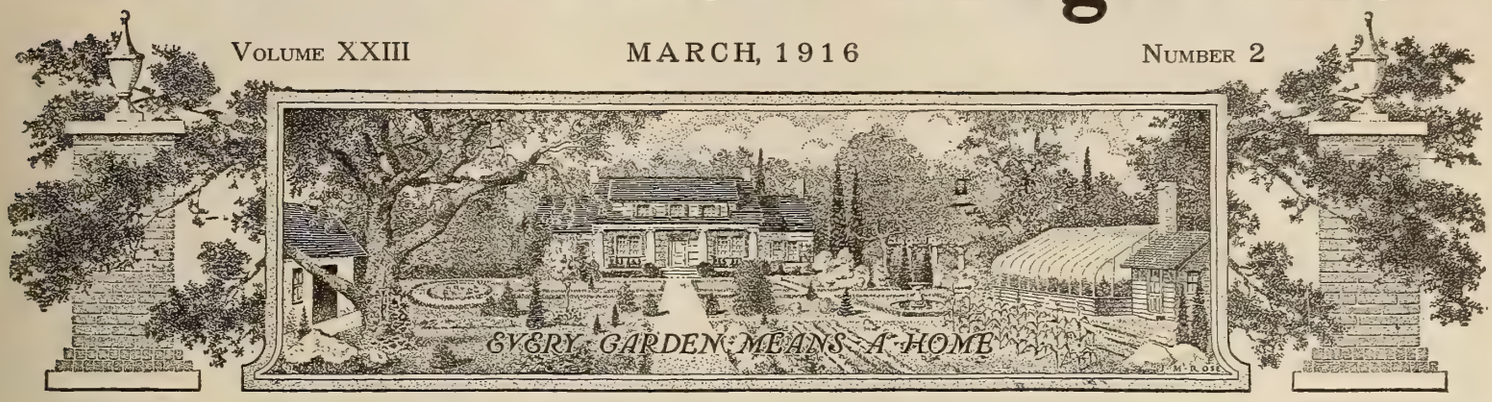
The Garden Magazine

VOLUME XXIII MARCH, 1916 NUMBER 2



ARE YOU ready? Gardening is a race against time and often against unfavorable conditions. The "plenty-of-time" gardener never has the earliest radishes and peas, or the finest roses and asters. He may say that he doesn't care: that the extra early varieties are no good, anyway; but later he complains about the bad luck he is having with bugs—because he is not prepared to fight them any more than he was to get his early seeds into the ground at the first possible opportunity. Gardening is a series of hundred-yard dashes, without any time for training or "making-up" in between. When you have to stop this week to do what you should have done last week, you are only doubling and trebling next week's work, for weeds and bugs, like time and tide, wait for no man—or even woman! The consequence is that some things which you honestly planned and expected to do have to be slighted, and, at the end of the season, poor old General Bad-Luck will have the responsibility for it all again laid on his shoulders.

ARE YOU ready for this year's garden race, which will begin before the end of this month? We are—we think justifiably—proud of the plans we have made to help you have more beautiful and more efficient gardens. But it will make little difference how enthusiastic you may get over a new idea in landscape planting, or of increasing the quality and yield of your vegetables, unless the common, prosaic, fundamentals are attended to. We cannot do it for you. We cannot even get you enthusiastic about that. All we can do is to remind you emphatically—which is the purpose of these paragraphs—of its vital importance.

Are your plans definitely made? Some one has described art as "the science of omitting." The art of gardening is no exception. Every time you look through a catalogue or a magazine, you probably get a dozen suggestions which you would like to put into operation in your own garden. Do you know what you are going to leave out—what not to attempt? That is the secret of succeeding with what you *do* attempt. Make your plans definite and not over-ambitious.

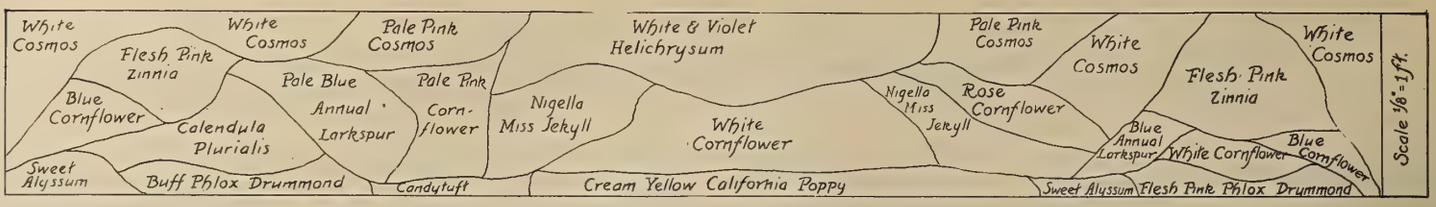
Are your seeds bought? It is remarkable how many gardeners wait until the last moment, and suffer delay or buy seeds from some local store. Seeds sold in this way are on the whole not nearly so reliable as those purchased direct from seedsmen, and the selection of varieties is decidedly limited.

Are your plants arranged for? Whether you grow them yourself or buy them, you should know by this time just what you will need, and have them well started or engaged. In the latter case select personally, if possible, from some local grower. The only way to be sure of getting the best is to select them several weeks ahead, before they have been "picked over." Better still, if you have a coldframe, get them a week or two in advance, and give them plenty of room and the best attention, so that you will have them on hand in the best of condition when conditions are favorable for setting out.

Have you procured the fertilizers needed? There is not room here to go deeply into the fertilizer question. But practically every garden, even if it has been manured liberally, will be benefited by a generous application of high-grade fertilizer, analyzing four per cent. of nitrogen, eight per cent. of available phosphoric acid, and ten per cent. of potash. You may not be able to find that analysis on the market this year. To make up for a deficiency below these figures, add: For nitrogen, nitrate of soda; for potash, muriate or sulphate of potash; or give a generous application of wood ashes in addition to the fertilizer. The nitrate of soda, instead of being added to the mixture, may be applied in the form of light top-dressings. As to the amount, use one pound to each twenty to fifty square feet, in addition to manure, of high-grade mixed fertilizer. Of course, the more manure, the less fertilizer you will need. If no manure at all is available, at least the maximum amount of fertilizer mentioned should be used. Enrich the flower garden as well as the vegetable garden. Shrubs, fruit trees and ornamentals also appreciate fertilizing as well as vegetables and flowers. In estimating the amount required for these, square the diameter of the circle covered by the "spread" of the branches; that is, for a cherry tree with a ten-foot span, allow fertilizer for one hundred square feet. In addition to this general or basic fertilizer, you should supply nitrate of soda, fine ground bone, coarse or knuckle bone, and if you can get it, genuine Peruvian guano (which is again on the market in limited quantities), or in lieu of that, dried blood or high-grade tankage. All of these things will keep for several seasons in a dry place.

Manure for the small garden cannot be measured as definitely as fertilizers. The best rule is to get all you can. There is practically no danger of getting too much. If some of it is light and full of straw, it will be well, in working it over, to fork this out and set it aside to use later for mulching. If you cannot get good, well-rotted stable or barnyard manure, it will be better to get a substitute, rather than to try to make up by increasing the dose of commercial fertilizers, because it is desirable to have at least part of your plant food in *organic* forms. Commercial preparations of dried, cured and standardized stable and cattle manure may be purchased at a reasonable price. Sheep manure is very rich. A great part of the value of stable manure lies in the humus and the active organic bacteria which it contains. Sheep manure and commercial humus combined, make therefore an excellent "synthetic" manure, for a substitute.

AFTER the beginner's stage is passed, when the routine work of seed sowing, etc., becomes not an end in itself but merely a detail in the proper development of the plant itself, the garden amateur looks with keen interest on the novelties of the season. To the thoroughgoing enthusiast, the "novelty section" is, indeed, the only good reason he has for looking through the annual catalogues. And what wonders they offer! Novelty is, indeed, the spice of the garden, and each one of us should certainly grow some of these things—if only one new bean or pea, or Rose, or new hardy shrub—and then tell our garden friends about it. One such article we shall shortly publish tells of experiences with some of the newer perennials. It will be interesting reading. The usual Annual Novelty Picture feature in the April issue will contain portraits of most of the striking floral novelties of the season. There is a noticeable dearth of plant novelties among florists, but some strikingly attractive Roses and Carnations, specially fitted for the private greenhouse, have appeared.



Just a Border of Annuals

LAWSON MELISH, Ohio

SIMPLE WAY OF GETTING COLOR EFFECTS IN A LIMITED SPACE—A SCHEME THAT CAN BE ADAPTED TO ANY SCALE BY PROPORTIONATE REDUCTIONS

ALTHOUGH annuals, when used alone, are supposed to be the medium of the amateurs' first attempt at gardening, they should never be thought of slightingly. Many charming combinations occur to me at the very mention of these magic things, which are planted, grow to some height, and flower, all in the space of a few short months.

The colors in this border (which is fifty feet long and eight feet wide) are blue, lavender, pink, and palest yellow; with plenty of the peacemaker, white. Strong yellows, orange, and red, are not used because they are, proverbially, troublemakers.

To prepare the ground, have the whole space spaded over—about the depth of the spade will be enough, although the more deeply and thoroughly the ground is worked, the better will be the results. If you have a nice loamy soil, the addition of bone meal will answer, but if it should be heavy clay, lighten with a liberal amount of sand and well rotted manure. Have the surface gone over carefully with a steel rake, and all lumps broken, until it is as fine as fine can be.

Sow the seeds in longish "drifts" as indicated on the plan. I always scatter the seeds, thinly, and have at hand a bucket or two of finely pulverized earth, to scatter by handfuls over the seeds until they are properly covered; then firm the soil with a board, or lacking a suitable one I sometimes "spank" the seeds in with the flat back of a spade.

Most failures with annuals are due to either too deep planting (the ones in this plan need only to be covered) or to careless or too infrequent watering during their infancy. The ground should never be allowed to bake into a solid cake, but watering must be most carefully attended to, so the seeds will not be washed out of the ground. Late afternoon is the time all "knowing ones" water, so the little plants may drink long and deeply all night before the morning sunshine steals away the moisture. There are such attractive watering cans to be had, of English make, with very tiny holes in the spray end, especially made for watering newly planted seeds and seedlings.

Every flower on this plan can be planted out-of-doors just as soon as the frost is well out of the ground. Of course the Cornflowers and Annual Larkspur may be planted in the autumn for earlier blooms in the spring. But we can't both eat and have the cake. If they start early, they likewise get quite shabby by the end of July; so, if I feel that I must have the earlier bloom, I plant in May and again in June, Gladioli among the Cornflower and Larkspur seedlings, to keep up appearances.

The pale yellow California Poppy is very lovely; it should be the palest primrose one, not the deep orange that we commonly see. Nigella Miss Jekyll, is that heavenly pale blue Maid-in-the-mist; and the Calendula pluvialis is not the orange or yellow Pot Marigold, but a lovely single white, with a lavender tinge to the under side of the rays. Helichrysum is the Straw-flower of our grandmother's gardens, which can be cut before frost, hung upside down for a few days, and then arranged in the house for winter decoration. The bloom is like a double cup-shaped Daisy and comes in nice pale shades; grows some four or five feet high, and is in my humble estimation thoroughly alluring, both in the garden and in the house.

Use the Early-flowering Cosmos. Thin the plants to stand a foot apart; pinch back twice, for nice bushy plants, and stake carefully, and *inconspicuously, before* any support is really needed, so that the plants may not be injured by the first storm after they have attained their majority. Buy only the "flesh pink" Zinnia seeds, not any described as just "pink," which would surely prove to be magenta. I personally prefer the single Zinnia, but it is a particular failing of mine to fancy the single form of any flower.

Cornflowers are so pretty when planted in nice masses, especially the lovely pale pink, and white ones. It is almost impossible to sow the seeds thinly enough, so they must be thinned out to stand about six inches apart. Cut the flowers with long stems, including some of the foliage and buds. These, or as a matter of fact any annual will stop flowering if allowed to go to seed. When the Cornflowers get pretty tall, I cut them back to about eighteen inches high, a few plants at a time, so the border may not look shabby, give the plants a drink of liquid sheep manure, and behold in a week they are like new! If the whole border is gone over in this way, the blooms may be kept at their best for a long period.

The buff Drummondii Phlox is sometimes listed under the name lutea, and it is the most delicate and peacemaking addition to any garden plan where just that tone is needed.

This is a simple plan of the "old reliables" which are as well nigh "fool proof" as lovely things can be. A garden of annuals may be a thing of rare beauty, and to those who think of making one, may I say with pleading, please make a carefully thought out plan and don't just order seeds and plant them hit-or-miss wherever whim may dictate on the day of planting. Thoroughly satisfactory results have rarely if ever been the product of such procedure.

The plan shown above is designed in bold proportions but it may be easily adapted to any available space by the simple method of reading on a different scale; equally the scheme may also be fitted to a wider border.

Here is an effective use of annuals. The garden is near the sea, and shelter is provided by a hedge. Of course the ground is fertilized

Malus Halliana f. Parkmanii, though peculiarly distinct, is frequently confused with others of the Crabapples

Malus floribunda, the best known of the Asiatic Crabs, is wreathed in pink blossoms in May–June. Original country unknown

The Parkman Crab is considered by many to be the most beautiful of the Asiatic Crabapples

Japanese Cherries and Asiatic Crabapples*

E. H. WILSON, Arnold Arboretum

MANY OF THESE ARE ALREADY WELL KNOWN AND YET RARELY PLANTED IN OUR GARDENS — THE NOMENCLATURE IS HERE SET RIGHT AND THE IDENTIFICATION OF THE TREE IS MADE EASY

[AUTHOR'S NOTE: *"I wonder if you know how often you mention a wonderful tree or vine which* NO *catalogue that I have ever seen (and I have dozens) ever mentions, and I want to ask do you write expecting us to buy these things or are you merely telling us of their beauties?"* Thus writes a correspondent from Indiana, squarely putting a question which very many others have asked in less exact words since this series of articles began last June. This being the case it would seem that the time had come for some definite reply.

Now, with very rare exceptions, the plants mentioned in these articles have been in commerce anywhere from five to one hundred years. With deliberate intent I have abstained from detailing the beauties of plants which are not purchasable. The future can well be left to take care of those. Certainly I write for the purpose, and in the hope, of inducing garden lovers to grow in their gardens a greater variety of beautiful hardy woody plants. Also, I have another purpose which I will divulge in due season. So much for that part of my correspondent's question which has direct reference to myself.

As to the other part: it is for those who make a business of dealing in this class of plants to give answer. Yet, in fairness, it may be said that we can scarcely expect the nurserymen to exhibit all the push and enterprise necessary to give to American gardens all the variety of good things they should possess. Amateurs too must do a share and this may in a measure be accomplished by dunning their favorite nurserymen for the particular plants desired. We are really only at the beginning of things and the amateur must take a lead and insist on his dealer supplying the plants he desires; not merely those which the dealer may happen to have in stock. Heretofore the position has been that of the dealer as nurse, and the amateur as child. But horticulture in this country is fast emerging from its swaddling clothes; indeed, it may be said to be well into the adolescent stage in many states of the Union. This means that the lover of plants must, and will, have a larger voice in the variety that shall be grown in gardens. Increased knowledge of, and love for, plants of every kind is the leaven that will conduce to the upbuilding of American gardens. The solution of the present problem will be found in both amateur and dealer becoming more and more progressive.—E. H. W.]

THE group of plants to be considered in this article is not exceeded in beauty and hardiness by any other, and yet its members are comparatively rarely seen in American gardens. A few are fairly well known to older garden-lovers and here and there in city parks, like those of Rochester, N. Y., several may be seen in all their beauty. But truly there should be no garden, even a suburban garden, without its Flowering Cherry and its Crabapple tree.

When I think of the popularity certain plants of much less lasting value have attained I cannot help thinking that it is want of knowledge and not want of appreciation that has kept in the background the extremely ornamental plants with which this article deals. If any reader will visit the Arnold Arboretum in late April and May, and see the collection of these plants in blossom, he will depart hungry for them and will not rest content until one or more be growing in his own garden.

In the cooler parts of the temperate regions of western lands there is no more beautiful sight than the Apple orchards in full blossom in the spring unless it be the same orchards in autumn laden with ruddy fruit. But the utilitarian is apt to stifle the aesthetic spirit in so far as this and other familiar sights are concerned. The common Plum and the common Cherry suffer in the same way, yet the winsome beauty of their flowers is undeniable. Again, an orchard of Peach trees in bloom is wondrously pretty though the trees have not the picturesque appearance of aged Apple trees.

However, if familiarity has dulled our spontaneous enthusiasm for the floral charms of these indispensable

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fruit trees none, when taxed with the question, will attempt to deny their effective beauty. It is with the near relatives—the brothers, sisters and first-cousins—of these familiar fruit trees that I am about to treat here and since the fruits they produce have no comestible value we can drink in their charms uninfluenced by the pernicious alloy of utilitarianism. But do not misunderstand me: I am not denying the indispensable value of our fruit trees as such nor their extensive and extended culture. Quite the contrary. But the creed of the true horticulturist is founded on that old Biblical truth—"man can not live by bread alone."

Malus floribunda has small, rose-pink flowers in greatest profusion

Malus Sargentii, a dwarf growing Crab with wine-colored fruits. Flowers white

Any attempt to portray in words that marvelous floral spectacle known in Japan as the Cherry festival fails lamentably. It must be seen to be properly appreciated, but no language can exaggerate the beauty of the Japanese Cherries. Readers of THE GARDEN MAGAZINE who have visited Japan and have basked in the loveliness of the Cherry blossoms must have yearned deeply to possess some of the trees. Such feeling is natural. We should have these Japanese Cherries in our gardens and there is no valid reason why here in eastern North America we should not have our own Cherry festival, for the trees are perfectly hardy and thrive here. In the Arnold Arboretum the few large examples we have produce a wealth of flowers each and every season.

I. A Hundred Different Cherries

OF FLOWERING Cherries the Japanese recognize a hundred or more varieties with white, yellow, pure pink to rose-colored blossoms. Some are small shrubs, others large trees with wide-spreading crowns; some have pendent and others quite erect branches. All are entrancingly beautiful. Cherry trees grow wild in the woods and thickets throughout the length and breadth of Japan and they are everywhere planted in vast numbers—in temple and castle grounds, in park and garden, in the streets of the cities and alongside the highways, by pond and by river-side. At Koganei, a village some ten miles from Tokyo, there is a three-mile avenue of Cherry trees planted in 1735, by command of the Shogun Yoshimune. Many of the trees are from sixty to seventy-five feet tall, with trunks from ten to twelve feet in girth and crowns from fifty to sixty feet through, and when in full flower the scene presented is a never-to-be-forgotten one.

In their season the Japanese Cherries are unsurpassed for wealth of bloom. Mostly pink and white

As one result of its recent expedition to Japan the Arnold Arboretum has now growing a collection of more than seventy varieties of these Cherries and in a few years the American public will have an opportunity of appreciating the attractive charms of these plants. Meanwhile the following kinds of proven merit should be grown by all who love a hardy plant.

The first of these Cherries to open its blossoms is *Prunus subhirtella*, the Higan-sakura or Spring Cherry of the Japanese. This is a low bushy tree, rarely more than eighteen to twenty feet tall, with thin ascending-spreading branches and a dense mass of twiggy branchlets, the whole forming a flattened or flattened-oval crown twenty to thirty feet through. The flowers are silvery-pink and are produced in such profusion as to hide completely the twigs and branches. This Cherry was introduced to cultivation by the Arnold Arboretum in 1894, and has been widely distributed.

The Weeping Cherry (*P. pendula*) has flowers similar to the foregoing to which it is very closely related, but it is a much larger tree, growing sixty to seventy feet tall with a trunk ten to twelve feet in girth, and massive spreading limbs dividing into branches which curve downward and into slender whip-like pendent shoots. It was introduced to cultivation by Philip Franz von Siebold who secured plants for his nursery at Leiden, Holland, from Japan about 1863. It is a long lived tree but I have never seen a good example in the Occident. In Japan, and especially in the temple grounds, magnificent examples are common and there is no more graceful or beautiful tree than this Weeping Cherry. The Japanese called it Shidare (Hanging) or Ito-zakura (Thread Cherry) on account of its very slender whip-like pendent branchlets.

The Cherry so abundantly grown in and around the city of Tokyo and whose season of blossoming is made the occasion for a national holiday is the Yoshino-sakura (*P. yedoensis*). This is a large, quick-growing tree which at its best is forty-five to fifty feet tall with a trunk from six to eight feet in girth and massive spreading branches forming a rounded crown from sixty to seventy-five feet through. The fragrant flowers are larger than those of the preceding two Cherries, and vary in color from pure pink to white. If crowded together the trees grow taller but the crowns are narrow and much less shapely. It was introduced to the Arnold Arboretum in 1902, from Tokyo, and the seedlings have grown very rapidly.

The most beautiful of all the wild species of Asiatic Cherries is *P. Sargentii*. This is a native of the northern and colder parts of Japan and has large, pink to rose colored flowers and the young unfolding leaves are a ruddy-brown. It is a large and long lived tree and the avenue at Koganei mentioned previously is of this species and its varieties. Dr. Bigelow sent seeds from Japan to the Arnold Arboretum in 1889, and trees raised from these seeds are now twenty-five feet tall with a trunk four feet in girth and a crown twenty feet through. Nearly all the Japanese Cherries with double rose colored flowers are forms of this *P. Sargentii*, and it is the stock on which all of that class should be grafted or budded in order to make them long lived trees in this climate.

One of the loveliest of these rose colored Cherries with double flowers is known in western nurseries as "James H. Veitch." The Japanese name for it is Fugenzo and there is also a white counterpart which is styled Shirofugen. These two are distinguished from all others of this class in having two tiny green and folded leaves in the centre of the majority of their flowers as is the case in the double-flowered form of the European *P. Cerasus*.

Two other Japanese Cherries are *P. Sieboldii* and *P. Lannesiana*. The first named has rose-pink double or semi-double flowers and its leaves are clothed with soft hairs. In nurseries it is sold as "Watereri" and as "Naden."

"James H. Veitch," one of the best Japanese Cherries, has double rose-colored flowers

The other species has many aliases and in its different forms is sold as *P. pseudocerasus* and as *P. serrulata*, names, however, to which it has no proper right, and which have proved a great bugbear and hindrance to our proper appreciation of the garden varieties of Japanese Cherries generally. In typical *P. Lannesiana* the flowers are pinkish but its wild form has pure white blossoms. All the numerous forms of this cherry have fragrant flowers and they are mostly white or pale pink. One sort (Grandiflora or Ukon) has clear yellow flowers and in another (Gioiko) the color is yellow with a green band down each petal. In both the flowers are double. *P. Sieboldii* and *P. Lannesiana* together with their forms are trees from twenty to thirty feet tall, with wide-branching heads, and in Japan they grow rapidly but are not long lived.

GRAFTED ON WRONG STOCK

In the Occident we have not been very successful in cultivating the double-flowered forms of these Japanese Cherries and from information gained during my recent visit to Japan I am convinced that our want of success heretofore has been due to the fact that for our climate they have always been grafted on the wrong stock.

All the single-flowered sorts of these Japanese Cherries fruit freely with us and should be increased by seeds, for seedling trees of these Cherries grow more freely and more satisfactorily than those raised by other means. All the double or semi-double flowered kinds should be grafted or budded on *P. Sargentii*. If this be followed I make bold to say that these Cherries will thrive as well, grow as freely and live as long as they do in Japan.

One other species of Japanese Cherry deserves mention and that is *P. incisa*, which is abundant on the lower slopes of Mt. Fuji and the immediate vicinity but is confined to those regions. It is a bush or small tree from five to thirty feet tall with ascending and spreading thin branches and twiggy branchlets and pale pink to pure white flowers. This Cherry blossoms profusely in a small state and is the only kind the Japanese dwarf and grow in pots, and on this account they designate it the Mamezakura—Dwarf Cherry.

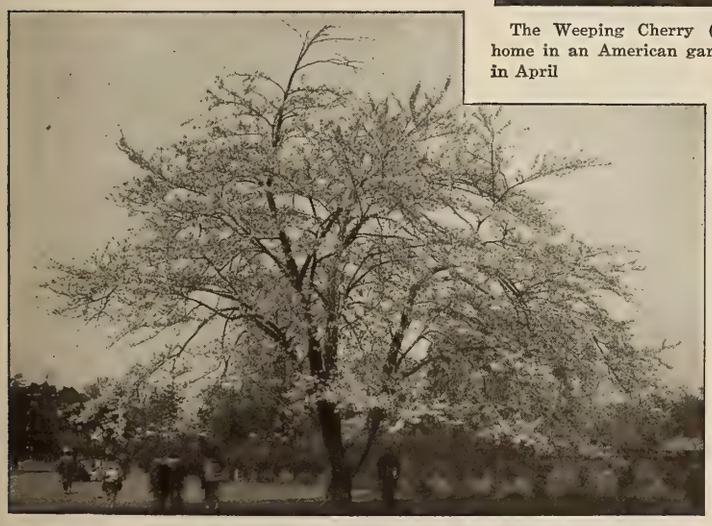
HOW WE CAN USE THEM

All the Japanese Cherries make excellent specimens on lawns where they are seen to good advantage. The smaller growing kinds may be massed together for telling effect whilst for avenue trees *P. Sargentii* and *P. yedoensis* cannot be surpassed. They thrive best in a light loamy soil but like all their kin they are subject to attacks of scale insects. These pests may be easily kept down and the trees maintained in good health by spraying in late winter with lime-sulphur (one gallon to eight gallons of water) or with miscible oil (one gallon to fourteen gallons of water).

II. The Crabapples

IN HORTICULTURAL and botanical literature the Crabapples are often referred to as "Pyrus (something)" but nowadays it is customary to speak of them under the generic title of Malus and to restrict that of Pyrus to the Pears, and this is followed here. My intention is to tell here of the Crabapples of eastern Asia, but there are also several very beautiful species of Crabapple native of this country—as for example, *M. angustifolia*, *M. fusca*, *M. glaucescens*, *M. coronaria*, *M. ioensis* and its form, known as the Bechtel Crab, which has large and fragrant double pink flowers that look like roses and excite the interest and admiration of all beholders. The American Crabapples blossom later than their Asiatic allies and both groups deserve the widest recognition.

The Weeping Cherry (*Prunus pendula*), quite at home in an American garden. Has pale rose flowers in April



Prunus yedoensis in the Botanic Gardens, Tokio. A quick growing tree fifty feet high with a spread of seventy-five feet

Typical scene in Japan, with Miyako Cherry (double pale pink fragrant flowers). This effect is equally possible in America

The Siberian (*Malus baccata*) is the oldest known but one of the Asiatic Crabapples, having been introduced to Europe in 1784. It is a tree thirty to forty feet tall, with stout spreading branches and slender branchlets which form a broad rounded or more or less oval crown. The flowers are pure white and delightfully fragrant and are profusely borne in clusters; the fruits are small, yellowish or yellow-brown. This tree is widely dispersed in the cold northern parts of eastern Siberia and extends southward into Mongolia, Mandshuria and extreme northern China. It is the most northern of its class and the hardiest of all species of Malus and for this reason ought to be used in the colder parts of this country as a stock for the common Apple. In the littoral regions of northeastern Siberia, in Korea and in northern Japan, this species is represented by its variety *mandshurica* which differs in certain technical points and has scarlet fruit. In Korea, there is a form (*Jackii*) which has handsome, relatively large dark red fruit. Under cultivation numerous hybrids between *Malus baccata* and the common Apple and other species have arisen and all of these are ornamental in flower and exceedingly beautiful in fruit. They are known collectively as Siberian Crabapples but many of the varieties have received distinctive names.

The oldest known is the Chinese *M. spectabilis* which was introduced from Canton to England in 1780. It is cultivated in the Imperial gardens at Peking and elsewhere in China, but has not yet been reported in a wild state. It is a small tree twenty to thirty feet tall with a narrow vase-shaped crown made up of numerous rigid ascending branches and short branchlets. The flowers are pale pink, more or less semi-double and fragrant, and the fruits are yellow, nearly globose, and about three quarters of an inch in diameter. The habit is rather stiff but this old denizen of gardens with its wealth of clustered blossoms is strikingly beautiful.

A lovely Crabapple bearing in season its pale pink flowers in the utmost profusion is *M. Scheideckeri*. This is also a small tree, loosely pyramidal in habit and of hybrid origin and one of its parents is assumed to be *M. spectabilis*.

The next species to make its début in this country is the celebrated Parkman Crab (*M. Halliana*) which was sent from Japan to the United States by Dr. G. R. Hall in 1861, and first cultivated by Francis Parkman, the historian, in his garden on the shores of Jamaica Pond, Boston, Mass. This is a tree-like shrub with a broad, bushy crown and twiggy branchlets and rather thick, dark green leaves deeply tinged with bronze color where they unfold. The flowers, each on a long slender stalk, are borne in clusters and are bright rose color, and these are followed by pea-like dark greenish-red fruit which ripen very late in the fall.

In a family so beautiful as the Crabapple there is room for divergence of opinion as to which is the finest, but many (of which I am one) consider the Parkman Crab the most winsome of all the Asiatic species. The type has flowers single or nearly so, but there is a form (*Parkmanii*) which has double or semi-double flowers. This lovely plant has long been a favorite in the gardens of the flower-loving Japanese who call it the "Kaido," but like many plants cultivated in Japan it is of Chinese origin. In 1904, I had the pleasure of discovering it growing wild in thickets on the frontier of western China and Thibet and collected seeds from which plants have been successfully raised.

A very desirable plant is *M. atrosanguinea* which is a hybrid presumably between *M. Halliana* and *M. Sieboldii*. It is a broad shrub

growing ten feet or more high with thin spreading and arching branches and rose-pink flowers.

Perhaps the best known of these Asiatic Crabapples is *M. floribunda*, which was introduced about 1853 by von Siebold, to Leiden in Holland, yet its native country remains unknown to this day. Present day Japanese botanists seem unacquainted with this plant and both they and Japanese nurserymen confuse it with the Parkman Crab, and during my trip in Japan I never met with it. However, since our gardens are in fortunate possession of it we can waive the more academic question of its habitat. It is a broad, round-topped, tree-like shrub sometimes twenty-five feet tall, and as much in diameter, with slender arching and pendent branchlets. The clustered flowers are pure white when expanded and bright rose color in bud, and as they open in succession the contrast is singularly beautiful. The fruit is about the size of a pea, yellowish or yellow-brown and long persistent but not attractive except to birds who appear especially fond of it.

In gardens all the species of Malus hybridize freely and the group offers a field of immense interest to those who will breed and select the offspring. Some years ago there appeared in the Arnold Arboretum among a batch of presumed seedlings of *M. floribunda* a very distinct plant which has been named *M. Arnoldiana*. It is probably a hybrid between *M. floribunda* and *M. baccata*, but whatever its origin it is certainly one of the most lovely of all Crabapples. The habit is similar to that of *M. floribunda* but the flowers though of the same color are one half larger and the fruit too is much bigger. A friend of mine who lives at Winchester, Mass., has a fine specimen of this hybrid growing under the lee of his house and no one has yet been able to persuade him that there is any other Crabapple which approximates to this in beauty.

At the same time as Siebold introduced the gem *M. floribunda* he also introduced another Crabapple (*M. Sieboldii*, better known as *M. toringo*). This is a low dense shrub of sprawling habit with lobed leaves, small flowers, white tinged with rose in color and small yellow fruit. It is really a scrubby form of a species widely distributed in Japan and horticulturally inferior to its real type, now known as var. *arborescens*, which is a small tree with ascending and spreading branches, twiggy branchlets and fruit yellow or red on different individuals. Another variety (*calocarpa*), raised from seeds sent in 1890, to the Arnold Arboretum from Japan by Dr. William Sturgis Bigelow, has handsome bright red fruits half an inch in diameter and is in fruit the most strikingly beautiful of all Crabapples.

In many a suburban garden of America the Weeping Cherry may be seen as a lawn ornament, often grafted on a standard. How much better when grown naturally as an individual tree on its own roots. (See preceding page)

Differing from the tree form of *M. Sieboldii* only in certain technical matters is *M. zumi* which was introduced to cultivation by Professor C. S. Sargent who collected seeds in Japan in 1892. This too is a very desirable small tree with fragrant white flowers and small yellow or red fruits. It is common on the slopes of Mt. Fuji and on the shores of Lake Chuzenji in the Nikko region.

Most of the orchard fruits grown in the countries of the Far East have been obtained by long cultivation from species indigenous to China and have not common origin with the same kinds of fruits cultivated in this country and in Europe. The Apple of that region is an example. It is only very recently that science has become acquainted with the source of the Apple of China and Japan although under various names it has been in cultivation in the Occident for some sixty years. This Apple (*M. prunifolia* var. *rinki*) grows wild in the mountainous parts of central China where I was fortunate enough to discover it in the spring of 1901, and later secured seeds which resulted in its successful introduction to our gardens. Previous to this discovery it was known only from plants cultivated in Japan, and by most botanists was considered a very doubtful plant. From Japan it was introduced to Europe about 1854, and distributed by von Siebold as *Malus ringo*. In habit this species resembles the common Apple but its leaves are rather different, the flower stalks are much longer and the fruit is not impressed at the summit. As a fruit tree the Chinese Apple is cultivated in central and western China, from river level, where the climate is very warm, to altitudes of 9,500 feet in the more mountainous parts, where a severe climate obtains. In northern China and Korea it is cultivated sparingly over a wide area. The fruit is small, seldom more than 1¼ inches in diameter and slightly longer than broad, of a pleasant bitter-sweet flavor and varies in color from greenish to greenish yellow and is rosy on one side. Occasionally it is nearly all red. Formerly this Chinese Apple was cultivated in Japan for its fruit, but since the introduction of varieties of the European Apple its cultivation as a fruit tree has been discontinued.

There are other species too of much merit and beauty and several new ones whose value we do not fully know, but there is one so distinct in habit and with a field of usefulness so peculiarly its own that it must not be omitted even in this incomplete enumeration, and that is *M. Sargentii*. This species is of dwarf stature with the branches rigid and spreading, and the lower ones flat on the ground, and is eminently suitable for covering slopes and banks. The flowers in umbellate clusters are saucer-shaped, round and of the purest white and these are followed by masses of wine-colored fruit which is covered with a slight bloom. In its habit, its flowers and in its fruit it is very distinct from all other species. We owe this valuable addition to Professor C. S. Sargent, who discovered it in fruit and sent seeds in 1892, from near Mororan in Hokkaido, Japan.

In this group of Asiatic Crabapples there are trees for the avenue, park or garden, shrubs for the lawn or border and others suitable for slopes and banks—all absolutely hardy in the coldest parts of New England and each and every one may be depended upon to produce every spring season a wealth of blossoms in veritable cascades. The plants grow quickly in good loamy soil and many of them begin to flower and produce fruit when only a few years old. They will thrive anywhere that the common Apple will grow if attention be paid to keeping them free from the scale insects which are destructive to all plants of the Apple tribe. This may be accomplished readily by spraying with the same antidotes as recommended in the case of the Japanese Cherries.

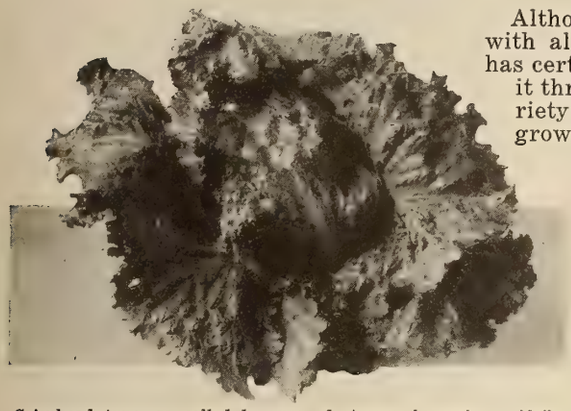
[*Next month: Lilacdom*]

The well known Siberian Crab (*Malus baccata*), the hardiest of all the Crabapples, is a reliable stock for grafting. The tree is extremely handsome in flower and in fruit

Malus spectabilis, well known in cultivation, has not yet been found wild. It makes a tree twenty to thirty feet high and is covered by a wondrous profusion of bloom.

Which Lettuce, and Why—By Adolph Kruhm, New York

FOR THE BENEFIT OF THE MAN WHO HAS NOT YET FOUND THE ONE CERTAIN WAY TO HAVE PERFECT LETTUCE FROM FROST TO FROST—SECOND ARTICLE IN "WHICH AND WHY" SERIES



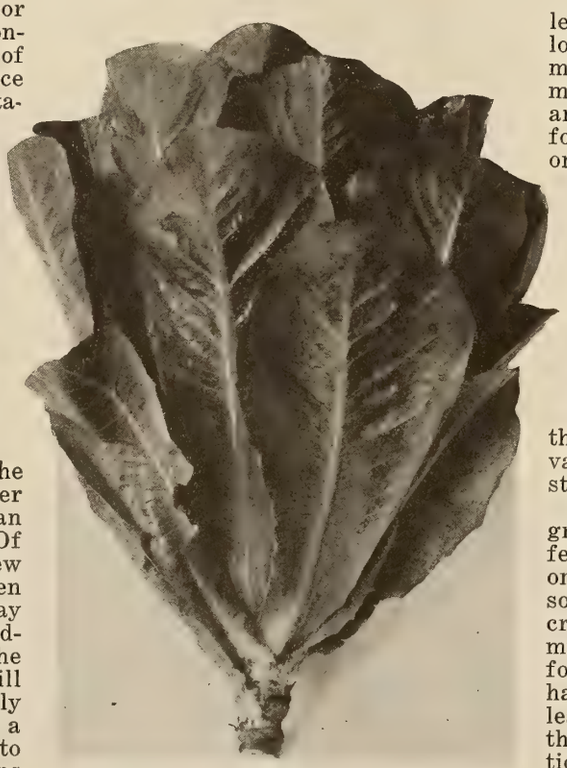
Crisphead type, so called because of strong, incurving midrib, giving appearance of a cabbage. Heat resisting. (Iceberg)

MY HEART goes out to the poor home gardener who is confronted by the necessity of selecting varieties of lettuce from the pages of the average seed catalogue; presuming even that he knows his needs and starts out to read descriptions which, he expects, will point out to him the sorts that may fill his requirements. He finds that practically all sorts are of "pleasing" green color, form "solid" heads quickly, are of "delicate" flavor, etc., etc. Finally he stops in disgust and either plants what he always did or lets his neighbor tell him what he ought to do—both undesirable courses.

And yet, a thorough analysis reveals the fact that the list of really dependable sorts of lettuces for the home garden has undergone fewer changes during the last ten years than almost any other class of vegetable. Of course, there is the usual quota of new sorts; there are also varieties which ten years ago were novelties and which may now be considered dependable standards. But, everything considered, the best lettuces of ten years ago are still among the leaders of to-day—carefully hidden in most catalogues among a maze of more or less worthless sorts to which the seed world clings for reasons of its own.

Although lettuce, in common with all other growing things, has certain soil preferences, yet it thrives on quite a large variety of soils so that it can be grown successfully almost anywhere in this country. These factors determine which sorts it is wise to grow: (1) The soil available, (2) the climate, and (3) the amount of work you are willing to do. I don't know but that I should name the last factor first, and I would, were it not for the fact that it might "scare" some of our good "gardeners" before the start.

Loose-leaf type. Early, but does not form a "head" and is best used for garnishing. (Grand Rapids)



Cos or Romaine type. Upright habit, with stiff, tightly folded leaves of markedly strong flavor

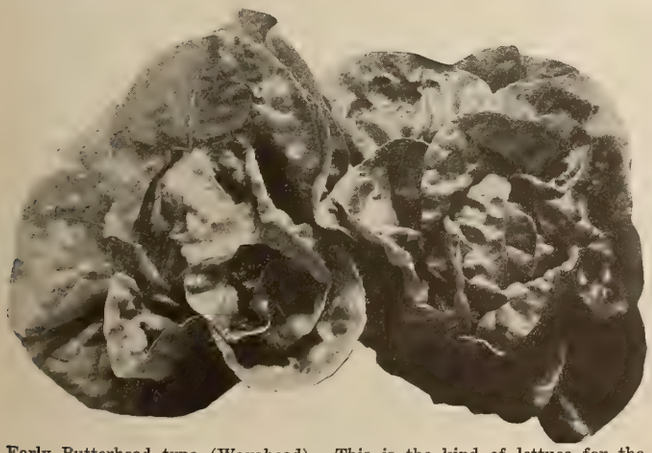
DEFECTS OF "IDEAL" SOIL

The ideal soil for growing perfect lettuce of any kind is a deep, mellow loam, well enriched with plenty of manure, a soil that will hold plenty of moisture, warm up quickly in the spring and release a maximum amount of plant food in the shortest possible time. Not one out of ten home gardeners has such soil! But that need not discourage them. Part of the trials, results of which are recorded here, were conducted on just such soil and here is what I found:

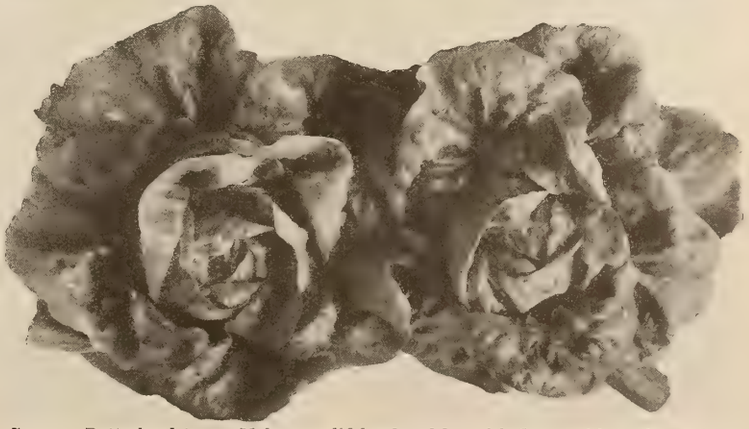
The ideal soil too strongly shows up the deficiencies of each sort; it would cause the average gardener to condemn otherwise good sorts and, above all, it will not give him a true idea of real flavor in lettuce. For there *is* some difference in flavor of the various sorts, other opinions notwithstanding.

The "standing" quality of lettuce grown on ideal soil is very much inferior to that of the same sorts grown on poor clay. Nor are the heads as solid (especially the summer sorts and crispheads) and the flavor is uniformly milder, sometimes even "flat." Therefore, be satisfied with whatever soil you have and select from among the fifteen leaders named in this article the sorts that will serve you. Thorough cultivation will offset the shortcomings of any soil in connection with lettuce.

On the other hand, don't attempt to



Early Butterhead type (Wayahead). This is the kind of lettuce for the connoisseur who wants quality first



Summer Butterhead type. Makes a solid head and has rich flavor with tender texture. (All Seasons)

JUDGING STANDARD VARIETIES OF LETTUCE

LOOSE-LEAF	BUTTERHEAD		CRISPHEAD	COS OR ROMAINE
	EARLY SORTS	SUMMER SORTS		
§Prizehead §Grand Rapids ‖ ‡ †Bon Ton ‡ *Early Curled Simpson †Early Curled Silesia †Morse §Black Seeded Simpson	*Boston Market *White Seed Tennis-ball †May King ‖ §Wayahead §Naumburger or Tenderheart §Blaek Seed Tennisball‖ †Salamander *Hubbard's Market §Black Seed Big Boston †Unrivaled §Speckled Dutch Butter	§California Cream Butter †Deacon §All Seasons §Brown Dutch	§Iceberg †Hanson †Denver Market †Brittle Ice *Giant Crystal Head *Drumhead or Malta §New York or Wonderful §Crisp-as-Ice	†Express or Eclipse *Dwarf White Heart §Paris White Cos

‡Varieties braced together are considered "too much alike" to be grown at the same time.
‡Too much alike. †Superfluous. *Obsolete. ‖Forcing blood. §Merit or worth-while sorts which are basis of Table II.

grow the extra early strains which have "forcing" blood in them, on poor clay soil. The Tennis-ball varieties, Big Boston and May King proved dismal failures on clay soil, but were at their best on rich loam. Again, Iceberg quickly formed loose, "flabby" heads on rich soil, but gained in solidity and standing qualities on poorer soil at the expense of size and time of maturity. There is "the law of compensation" at work. What you gain in size and earliness you lose in solidity and flavor and if you want the latter two, you have to be willing to work and wait a few days longer.

In studying the accompanying dates, the climatic conditions deserve serious consideration. During the time of the trials, weather conditions were nearly ideal for lettuce: It was cool and there was an abundance of moisture. It stayed cool for weeks at a time which is responsible for the length of time from date when plants were first "ready" to the time 50 per cent. were in prime condition. And all stayed in prime condition much longer than usual.

WHEN IS LETTUCE "READY"?

So far as I am concerned (and I speak, I believe, for the majority), lettuce is "ready" when the individual little plant first assumes its characteristic shape. In the case of head lettuces, this does not necessarily mean that there should be complete heads. But there must be a plant—not a loose bunch of oblong leaves four to five inches tall, which many people "pull" and imagine they eat lettuce!

As a rule, two weeks after the first thinning process, the spaces between the seedlings are filled and the plants begin to crowd each other. Then is the time to enjoy your first lettuce and to give the balance of the crop more room for perfect development by removing every other plant. If you just "work" at the time the first and second thinnings have to be done, the balance of the row will reward you in due time with "worth-while" heads, provided you use the hoe frequently on both sides of the row as well as between the plants. All the lettuces named in the table of types do best when the individual plants or heads are given a foot or more space in the row.

BED-ROCK DEPENDABILITY

The process of elimination employed to reach the bedrock of dependability in lettuces is shown in the other table: Black Seeded Simpson makes both Early Curled Simpson and Curled Silesia superfluous. Practically the *only* reason why Prizehead is on the list is because its unique appearance makes it a favorite and it is long standing. Wayahead makes Mayking superfluous and Tenderheart is just another name for Naumburger.

Unrivalled is but a poor strain of Big Boston. Salamander may be considered an early Hubbard Market and Hubbard Market would do for an early strain of California Cream Butter which is a small type of Maximum or Immensity; *but*—the last named is far from being properly fixed in type so the thing to do is to hold on to good old reliable California Cream Butter and consider the rest superfluous. Reasoning in this fashion, I arrived at the results shown in the table which I like to style The Survival of the Fittest.

I venture to say that, among 400 differently *named* sorts, representing perhaps 100 more or less distinct varieties, it would be difficult to select another fifteen varieties which, point for point, would measure up to this remarkable assortment. I am dividing them logically according to their chief character-

The trial lettuce garden as it was on July 5th, from seed sown in rich soil April 25th: Row 1, Iceberg (Crisphead); 2, All Seasons (Summer Butterhead), not ready; 3, Black Seeded Big Boston (Early Butterhead), 50 per cent. ready; 4, Black Seeded Tennis-ball (Early Butterhead), ready for use

THE SURVIVAL OF THE FITTEST AMONG LETTUCES

VARIETIES	SEEDS SOWN	THINNED TO STAND 4" APART	FIRST READY FOR USE	COLOR OF PLANT	HABIT OF GROWTH	50% IN PRIME CONDITION	STANDING QUALITIES	FLAVOR	SPECIAL NOTES
Early Loose-Leaf									
Black Seeded Simpson	April 25	June 1	June 14	Light yellowish green	Spreading	June 30	Excellent	Mild	Best of Class
Grand Rapids			June 12	Light green	Upright	June 25	Good	Mild	For Forcing
Prizehead			June 20	Brownish, green and bronze	Upright	July 5	Excellent	Bitter	Biggest seller
Early Butterhead									
B. S. Tennisball	April 25	May 20	June 20	Deep yellowish green	Spreading	July 2	Good	Mild	For Forcing
B. S. Big Boston				Light green, brown edge	Upright	July 3	Good	Pronounced	For Forcing
Wayahead	April 18	May 10	June 10	Dark yellow green	Upright	June 24	Excellent	Mild	Best early outdoors
Naumburger			June 15	Dark green, brown spots	Upright	June 27	Excellent	Mild	Long Standing
Midseason Butterhead									
California Cream Butter	April 25	June 1	June 30	Dark green with large brown spots	Upright	July 5	Excellent	Pronounced	Does exceptionally well on poor soil
All Seasons		May 20	June 25	Dark green	Spreading	July 10	Excellent	Pronounced	Stands cold better than heat
Speckled Dutch Butter		June 2	July 2	Light green, red tinge on edge of leaves	Upright	July 8	Good	Pronounced	
Late Butter and Crisphead									
Brown Dutch	April 25	June 1	July 5	Dark green, with brown tints	Spreading	July 10	Excellent	Bitter	Good for fall
Iceberg		May 20	June 20	Light green, pink edges	Upright	July 3	Good	Crisp but tasteless	
New York		June 1	June 25	Dark green	Upright	July 12	Excellent	Crisp but tasteless	
Crisp as Ice		May 20	June 30	Dark green with bronze shades	Upright	July 5	Excellent	Bitter	Good for fall
Cos Lettuce									
Paris White	April 25	June 1	July 1	Dark green	Upright	July 8	Excellent	Sweet while young Pronounced later	

Remark: "Pronounced" stands for stronger than mild; "Bitter" stands for stronger than Pronounced. *All are Good.*

istics into four groups: Loose-leaf, Butterhead, Crisphead and Cos.

THE FOUR SHARP GROUPS

The Loose-leaf sorts do not form heads, but just large bunches of leaves which, while young, make an elegant salad, but are good for garnishing only as soon as one gets taste of a good Butterhead variety. (An understanding of this fact will prevent asking the perennial question, "Why don't my lettuces head?"—ED.) Lettuce of the Butterhead group form solid heads, varying in size with the different sorts, according to the soil on which they were grown. Ideal soil grows very much larger heads than poor soil, hence the inadvisability of giving dimensions of heads of the different sorts.

The Butterhead sorts are the real lettuces for the connoisseur. They have the real "fatty" and "buttery" smooth flavor which cannot be described in cold language, while a few hours of cold storage will give them any degree of crispness besides.

The Crisphead sorts are so called on account of the strong midrib that goes through the centre of each leaf and which incurves strongly, giving the heads almost the appearance of cabbages. As compared with the Butterheads, the Crispheads are of rather "flat" flavor, but they are indispensable on account of their heat resisting qualities.

The Cos or Romaine lettuces are of quite distinct growth and appearance. They form upright, oblong, tightly folded bunches of leaves and make a pleasing salad of rather stronger flavor than the other classes. In England, where Cos lettuces are appreciated most, they are sometimes served and eaten like celery.

Little need be said regarding the looseleaf sorts I recommend—the tables tell the story. The Butterheads I am dividing into early and midsummer sorts. Do not attempt to grow the early sorts during July or August.

All Seasons, Iceberg, and California Cream Butter will fill the bill admirably during those months. Early in July, plant Brown Dutch among Butterheads and Crisp-as-Ice among the Crispheads for late fall use. Both sorts stand light frosts and do real well clear up to cold weather. The same may be said of Wayahead and Naumburger, but these should be planted the middle of July to be ready early in September.

REAL LETTUCE FROM JUNE TO OCTOBER

For a real schedule of "lettuce that is fit to eat" from June until October 1st, try this:

Start Black Seeded Simpson, Wayahead, and Naumburger in the house, coldframe or spent hotbed on March 15th, to be set outdoors at garden making time.

On April 15th, or as soon as weather permits, sow a fifteen-foot row each of Black Seeded Tennisball, Black Seeded Big Boston and California Cream Butter.

On May 1st follow with a fifteen-foot row each of All Seasons, Iceberg and New York.

In July wind up your efforts to have lettuce all the season with plantings of the late Butterhead group as suggested previously.

Sow seeds somewhat deeper during the summer months than you do early in the spring. Press soil in firm contact with seeds to induce quick germination and if soil and weather should be rather dry at planting time, sprinkle soil well after seeds are sown.

Making the Best of It—By Stephen F. Hamblin, Massachusetts

I. A Garden in Pure Sand

[EDITOR'S NOTE.—*In this series of articles Mr. Hamblin (a practising landscape designer) will give in brief form some practical suggestions for dealing with the difficult corners that always occur. Each month a different phase will be considered.*]

PERHAPS the most discouraging soil for garden operations is a stretch of pure sand, whether on a flat area or in a sloping bank. Still, in nature, something is always growing even in the driest sandy fields. If the soil is damp there are sure to be willows and grasses already; in a sand perenially moist one can do a great deal. For our present study we shall take the extreme case of a sloping stretch of sand where there is nothing green save a few briers and wiry grasses. Were it not so close to the flower garden it would be enough to let it alone to grow up in its own wild way. Similar sand banks in your neighborhood will show you what you can expect to be able to add to yours.

If you wish to take this problem in hand as a garden proposition you can far outdo nature, for you have the resources of the northern hemisphere at your command. If the area is large, or you wish merely to hide the soil, there are not a few trees and shrubs that grow very well in pure sand. Though they will grow on the driest slopes it is not fair to make them struggle from the start, but give each a shovelful of loam when you set them, and their start will be more vigorous.

Even evergreens are not denied you; most of the Junipers will help but the Red Cedar (Juniperus virginiana) will give height to the planting and not interfere with the herbs. Several pines are not averse to pure sand, as the Pitch Pine (Pinus rigida), Jersey Pine (P. virginiana), Mountain Pine (P. montana), and others. It may surprise you to know that the White Pine (P. Strobus) grows well in the poorest soil, and if you wish to hide a sandy field this tree will soon turn it into a forest.

Do not despair if your site be pure sand; see here how Nature furnishes a sandy tract. In the foreground the Evergreen Bearberry and Pines beyond

Deciduous trees should be planted to nurse the evergreens, some of them perhaps to be permanent. Black Locust (Robinia Pseudacacia) will outlive the planter and bear a load of fragrant white flowers each spring. The best nurse tree is the Gray Birch (Betula populifolia) on account of its rapid growth; if it becomes too tall cut it down and its vigorous sprouts are soon trees again.

Tree-of-Heaven (Ailanthus glandulosa) will thrive on the poorest soils; for fruit effects plant the female form; the male with its ill-smelling flowers should be cut back for vigorous sprouts.

For large shrubs in very sandy soil try the Wild Black Cherry (Prunus serotina) and the Choke Cherry (P. virginiana); neither will become trees under these conditions, but will flower and fruit as freely as ever. A low spreading shrub is the Beach Plum (P. maritima) of the sand fields of the Atlantic coast; before the leaves appear the flowers make a sheet of white. Two smaller shrubs are the Sand Cherry (P. pumila) and the Western Sand Cherry (P. Besseyi); they seek the sand plains throughout the northern United States.

As evergreen ground cover in sand nothing can excel Bearberry (Arctostaphylos Uva-Ursi), a creeping mat of small shining leaves. And the pink flowers in May and the mealy red berries in August are worthy of notice. It is not easily dug from the wild, but nurserymen offer rooted cuttings. Once started it spreads rapidly. For bloom in midsummer try New-Jersey-tea (Ceanothus americanus) whose stout red roots penetrate the soil deeply. In August the clustered white flowers are effective along dusty roadsides. The Western Redroot (C. ovatus) is quite similar, but blooms a few days earlier, and it would perhaps stand the sand treatment.

In autumn the Japanese Bush-clovers ought to give satisfying bloom. Three of them are offered, Lespedeza bicolor, the tallest species, with purplish flowers, L. Sieboldi (Desmodium penduliflorum) which is usually herbaceous, and bears rosy pea-flowers in panicled racemes, and L. japonica, which is similar but with flowers white.

If herbs are to be planted the whole area should be plowed or well spaded, and if available a little loamy soil or compost added. It won't be possible to add enough soil to ever make the site a fertile garden, but whatever can be given to help the plants get a good start will show in the first two years' growth. It is the scarcity of plant food and lack of water that make growth difficult. There are two chief classes of herbs as to their ability to withstand desert conditions. Many plants have a deep root and draw their moisture from several feet below the surface; such herbs are often not easily transplanted. Other herbs have succulent stems or leaves and store food and moisture there; these usually lie close to the ground and are soon smothered and lost on flat areas among taller herbs.

There are not many showy native plants thriving in sand that bloom early in the spring. The little Cinquefoil (Potentilla canadensis) appears early in our dry fields, but the little yellow flowers do not give much mass effect. Sand offers little nourishment for bulbous plants, though you might get Siberian Squills (Scilla sibirica) to stay with you. For early blooming, Evergreen Spurge (Euphorbia Myrsinites) does very well. It is a sprawling plant with fleshy glaucous leaves which are bright at all seasons. The greenish-yellow flower clusters are not striking, but come very early in the year.

In late May our sandy meadows become a waving blue sea of Wild Lupine (Lupinus perennis), a true garden where seemingly nothing else will grow. You can easily duplicate this natural planting, but don't try to dig the plants, for you won't get enough of their root system to make them live. Wait until July and gather a pint of their seed, sow at once in place in your sand garden and they will sprout as readily as beans

The native Hudsonia is here shown in the foreground, quite at home in almost pure sand. White Pine and Gray Birch in background at Shinnecock Hills, L. I.

and begin to bloom the next season. Now you will have Lupine forever. There is a pure white form that you may be able to find and add for variety.

A flame of brilliant orange will reward you every July if you plant the Butterfly-weed (Asclepias tuberosa) in quantity. The deep woody root breaks when dug, but the plant soon recovers. Nurserymen sell it, but you can raise hundreds for yourself if you plant in a seedbed in the spring the seed that you gathered from a half-dozen the previous October. As the seedlings are tiny they should stay in the bed two years before being set in their final position.

This is the showiest Milkweed, but the Sand Milkweed (A. amplexicaulis) is even more a sand lover. It is a slender leafy plant and the purplish flowers are rather showy in July when in large masses.

In August the Flowering Spurge (Euphorbia corrolata), an erect plant standing at least two feet, becomes a mass of white false flowers. The slender roots once planted remain forever and they go straight down to parts unknown. Cypress Spurge (E. Cyparissias) is the milky moss-like weed on the site of old homesteads in the East. Under the name of Napoleon's Plume it is often sold as a garden plant, but its chief virtue is the fact that it never dies, but spreads widely, no matter how poor the soil. The flat yellow-green flower clusters appear in August, and you can think them rather pretty when you reflect that nothing else will grow there as cheerfully as they.

In autumn the sand field can glow with the purple of Blazing-star, particularly Liatris scariosa of the dry fields of northeastern United States, but L. squarrosa, of more southern range, and L. elegans, from the sand plains of Virginia, will grow as well. Even the Kansas Gay-feather (L. pycnostachya) will grow in very poor soil, though the spikes will be shorter than those in the hardy border.

No ferns will grow in such a place as this, but several grasses can be depended on, particularly the wiry sorts. Several of the Fescue Grasses are among these, and the blue-leaved tufted sort sold as Festuca glauca is carried by the nurseryman as plants; it can be divided indefinitely when planting. Another tufted grass, one that spreads widely by its roots, is the Sea Lyme Grass (Elymus arenarius) found in the sands of the Great Lakes. The largest of our sand grasses, the Beach Grass (Ammophila arenaria) often stands three feet high. As it thrives in the shifting beach sands all along the Atlantic seaboard, and is easily raised from seed or the rootstocks, it is particularly valuable as a sand binder, holding the soil in place until shrubs and trees have become established.

Making Over Old or Poor Trees

SPRING WORK FOR THE GARDEN AND ORCHARD THAT WILL SAVE YEARS OF TIME IN GETTING GOOD VARIETIES—MAKING USE OF WILD SEEDLINGS, AND CHANGING OVER OLD VARIETIES TO NEW ONES

I. New Trees for Old

S. O. Q., New York

DON'T be in a hurry to abandon the old trees on the new place, or the trees on the old place which may have been neglected for many years. Often you can get just as good results from these old trees, by using the proper methods, as by planting new ones. Most vegetables and flowers, when seriously checked by the attacks of insects or disease, will never fully recuperate. But a fruit tree is a very different matter. Its vital parts—root-system and trunk and bark—may all be in robust health in spite of the fact that neglect in pruning and spraying have caused it to be worthless for many years so far as the production of fruit is concerned.

There are three general methods of converting old trees into new ones: Cutting back, grafting, and cutting down. The methods most generally used, and the one which is preferable under ordinary circumstances, where the *varieties* already growing are satisfactory, is that of "cutting back." To avoid confusion let is understand a few definitions: *Light pruning:* Cutting back surplus new growth, crooked, diseased, barked, and unsymmetrical branches. *Heavy pruning:* Removing, in addition to the above, some of the larger limbs of new growth, and in general opening up the tree. *Cutting back:* Removing more or less of the older growth with the object of inducing new growth, to form a new "head" or frame work. *De-horning:* Removing practically the whole top of the tree, leaving only the stumps or short stubs of the larger branches as a base for the new head. These various operations shade off into each other with no sharp lines of distinction.

For old trees which have been neglected for a number of years, cutting back more or less severely, according to the individual specimen, will generally be required; although in some cases a heavy pruning of the smaller wood, leaving the original head or skeleton intact will sometimes be sufficient. Cutting back a tree is a good deal more of a job than pruning it, and requires more work and greater skill. In the first place, one should have a very definite idea of the new tree.

A long neglected apple tree such as this is quite capable of being remade into vigorous growth, or may be "worked over"

After the heavy pruning. Small new growth is left to become basis of a new head, but some old wood is retained to carry along the root system

Nine out of ten old, neglected trees have grown too tall as well as too bushy. The new tree can be planned with a spreading, open, and comparatively low head. Trees in the small orchard may be made as low headed as possible; but in the case of a few individual trees planted near the house, it is usually best to have at least "head room" under the lower branches, to avoid injury to trees or fruits by children, light enough to enable grass to grow to within a few feet of the trunk, room to work the lawn mower, and so forth. The reshaping of the tree is not the only object in cutting back—clean, active new wood with normal capacity for fruit production is wanted. In making over a tree, therefore, after removing all the undesirable growth, a few young branches should be selected and saved. It will make little difference how small these are, provided they are healthy, straight and favorably situated.

Very often, on the old large horizontal limb, a few feet out from the original crotch or head, young branches with an upright tendency of growth are to be found, which will make a basis for a large part of the new head. These branches, after the tree has been put into shape, develop with almost incredible rapidity, since they receive the nourishment from a fully developed root system. The old limbs may be cut off just beyond one of these, or several up-

rights may be left and the branching end of the limb removed.

On the old upright branches that have grown too tall, healthy young growth with a *lateral* tendency should be selected and the tops of the old branches cut out. Comparatively few of the young limbs or sprouts should be saved —only sufficient to form the framework of the new tree, although there may be many just as good as these that must be ruthlessly cut away. The job must not be overdone, however, at the first cutting. In some cases, all that may be necessary in the work of remaking the tree can be done at the first operation, but generally it will be better to do it in two or three; a too severe cutting of trees that are in vigorous growth may do permanent injury. With old stock-bound, sod-bound trees whose growth has practically come to a standstill there is not so much danger. Where the treatment is to be gradual all the new growth, "water sprouts," and so forth, except what is wanted for the new head, should be cut out. Part of the old branches should be cut out at first, removing more of them the following season.

Frequently the trunk of the tree as well as the limbs has been eaten into by decay to such an extent that a thorough job of repairing must be done before the tree is re-started. This is work for the expert, usually.

CHANGING OVER

Where but a few, or unsatisfactory varieties of trees, have been started, it requires little additional work to produce not only a practically new tree but also *different* kinds of apples on it. This is done by the operation of grafting, not nearly so complicated as it seems from a description. Grafting is especially desirable for the very small place where there is room for but a few trees, as several varieties of good apples may be grown on the same tree. Grafting may also be found useful in making use of wild or "volunteer" apple trees, or of new growth of cut down trees of unknown varieties.

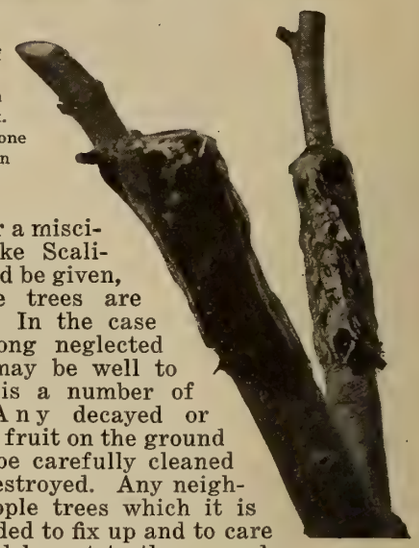
Volunteer wild apple, strong and healthy but useless. Graft it over to a known variety of merit

It sometimes happens that the trunk as well as the branches of an old tree is so far gone that it is not worth saving; even so a new tree may be made from the old one much more quickly than it can be grown. Cut the old tree off close to the ground. As soon as the resultant crop of sprouts is well started, cut away all but two of them and at the end of the season remove the least promising of these. If the variety is unknown or unsatisfactory, any kind or kinds desired may be budded or grafted on the second or third season. This will give you, of course, literally a new young tree which must be cared for just as one which you would set out. Cut it off at the proper height to form a low spreading head and keep it pruned to an open centre and to a good form.

This is "dehorning" and grafting over an old tree. Such radical treatment is not always to be recommended. Note two or three cions (as a precaution) and the thorough encasing of the wound

In getting new trees, started as described above, to attain a vigorous growth, supplemental care of several kinds must be given. Old neglected trees are usually sod-bound, and this condition should be one of the first things remedied. Where there are but a few trees, and it will not pay to have the ground plowed, remove the sod with a spade, pile it to one side, fork the ground up thoroughly, enriching it with a generous application of bone, potash and nitrate of soda and replace the sod inverted to serve as a mulch. Don't be afraid of breaking roots near the surface; if they are in the way, cut them off clean with an axe or a saw. If the soil has not been stirred for a number of years, particularly if it is heavy in character, it may be effectively loosened up with several light blasts (a quarter of a stick to each) of dynamite; this should be placed about as far away from the tree as the longest branches reach.

The old loose bark should be scraped from the large limbs and the trunk. If San José or oyster shell scale are present, a thorough spraying with lime-sulphur or a miscible oil like Scalicide should be given, when the trees are dormant. In the case of old, long neglected trees it may be well to repeat this a number of times. Any decayed or mummied fruit on the ground must be be carefully cleaned up and destroyed. Any neighboring apple trees which it is not intended to fix up and to care for should be cut to the ground, otherwise they will serve as harboring places to supply the trees which you do want with insects and diseases as fast as you conquer the ones which may now infest them.



Illustrating the method of covering the union with grafting wax. On the left one cion has been removed

In repairing old wounds and cavities caused by former neglected pruning, clear out everything back to clean, firm growing wood. Even if you have to remove valuable limbs or half the trunk to do so. It is absolute waste of time to patch up the surface of such a cavity while the interior remains in such a condition to continue to go on decaying. After cleaning out allow it to dry thoroughly, give a coat of creosote paint and put in a cement filling. In the case of a cavity starting at the crotch or head and eating down into the heart of the trunk, it may be necessary to make one or more holes through the side of the tree in order to clean it out thoroughly.

II. Top-Working Poor Fruit Trees

J. R. MATTERN

AT FIRST glance it would seem that a fruit tree once started on its career would be unchangeably set in its habits as to the fruit it bore. If the tree grew sour apples, for instance, what hope could there be for persuading it to grow Staymans instead?

Yet you can get poor trees to mend their ways by a slight surgical operation. And the operation is so easy to perform and so sure of the desired results that there is no excuse for allowing fruit trees about your home to produce fruit of inferior varieties—of poor flavor or color or size, or ripening at a time you do not prefer. The way to change your trees over to new sorts is to top-work them. You can do it yourself, and you may have any varieties you wish—the very finest.

Top-working is nothing more nor less than budding or grafting in the tops or branches of trees. You take a twig from the kind of tree you want, and insert it between or under the bark of the tree you have. Or you take a bud from the tree you want to duplicate, and in-

sert it under the bark of the tree you have and do not like. [This latter is done in June, and will be referred to in detail in The Garden Magazine for that month.—Ed.]

Limbs of about four inches in diameter are the biggest it is practicable to graft, and there is more certainty of growth, and better growth, when the grafted limbs are less than two inches in diameter, down to the size of a lead pencil. Grafting must be done early in the spring, just when the leaf buds begin to open. The time for grafting peach and plum trees will come a week or two earlier than the time for apple and pear trees. Have your equipment and materials ready to do the work when the trees have reached the proper spring development, and on a warm, sunny day. It makes no difference how old the trees are.

Cleft grafting usually is the best method of grafting for top-working. This consists of sawing off a branch square where you want to insert the cions, splitting the end back four or five inches and until it opens wide enough to let in the cions, wedging open the split, and inserting the cions in the way to be described. If there is much of the work to do you will need a hatchet with a thin blade, a saw, a sharp knife, and some hickory wedges. For only one or two grafts you can get along with the knife and the saw.

Two cions should be placed in each limb, one at each side of the split or cleft. If the limb is so big and stiff that it threatens to pinch the sap out of the cions, you should drive in the middle of the cleft (and leave permanently), a special wedge about as thick as the cions, to hold the wood apart. This wedge should allow the halves of the limb to grasp the cions lightly. But if the limb is small it will not pinch too hard.

In grafting very small limbs the tongue method sometimes is good. The "tongue" is made by cutting both stock limb and cion off at a long slant, then half way down this slant splitting back both limb and cion, and cutting away half of each for another quarter inch. This leaves both cut surfaces so that they may be mortised together. With very large limbs you sometimes can slip a cion between the inner and the outer bark without any splitting of the wood. Any device which holds the cion in place is good.

Beneath the brown bark of all fruit trees, next to the wood, is another layer of bark which is the business bark of the trees. The outer brown bark serves only as a protection. The inner bark is light green. The essence of successful grafting is to insert the cion (or bud) so that the inner green bark on the cion and the inner green bark on the stock limb line up with one another. It doesn't matter about the wood, and it doesn't matter about the outer bark. The brown bark on your cions will be less than a thirty-second of an inch thick while the brown bark on the limb may be almost a quarter of an inch thick. Make sure that the inner bark of the cion and the inner bark of the limb are in good contact, cover the openings and cut surfaces so as to exclude air and water, and the cions will be sure to grow.

The protection required is got with grafting wax, which you can make yourself or buy from the seed store. The best kind for ordinary use is hard at ordinary temperatures, and must be heated and painted on with a brush. This hard wax will not melt and run off and leave the graft without protection when the hot sun strikes it. It is made of the following materials: Two pounds resin, one pound beeswax, one half pound tallow. Melt these materials together, stir them well, and pour the mixture into a deep pan or kettle to keep until you are ready to melt it again for use. Be sure to get a good coating of wax over the sawed-off surface of the limbs and down the split sides. Also on the upper end of the cion, where it was cut off. The wax never needs to be removed.

Wood for cions must be dormant. The proper time to get it is in the autumn, after the leaves fall and before the fall freeze-up comes, though it can be cut from the trees in the spring before any sap starts to move if you fail to get it in the autumn. The nurserymen cut wood in the autumn and offer it for sale in the spring. Store the wood where it will neither freeze nor dry out. In a cellar, wrapped in damp cloths, is a good place, but a better way is to bury it in moist sand or sawdust in a box in the cellar. Green sawdust, right from the mill, with all its natural moisture, provides ideal storage. All wood for cions must be of the current season's growth. Old growth will not do. For use, cut the wood into sticks three to five inches long and with two or three buds, one end square, the other end a long wedge to the centre, with the slopes uniform and even, and with one bud at the side near the top of the wedge.

Plan the shape of each tree before you put on a single bud or graft. Place the cions or buds so they will grow at the right positions, and in the right directions, for future limbs. If you don't do this wisely and well, the heads of your trees will be in the clouds, beyond reach for picking and pruning and spraying. With proper planning you can make a top-worked tree take a splendid shape.

The trees to top-work are the seedling trees about your home, the old trees, the young trees that get broken off or that are untrue to name, the thrifty but inferior bearing trees. Sometimes wou can secure good results by top-working fine varieties which are subject to freezing or to diseases, on hardy, healthy trunks. Or you may want to try new varieties, or secure cross pollination. You can get blossoms and fruit in three years from a bud or graft. Any fruit can be top-worked. Get the budding or grafting wood from bearing trees, from old trees if possible—from trees you have seen and eaten the fruit of, or from trees owned by reliable orchardists.

Planning the Vegetable Garden for Maximum Returns from Minimum Space

M. G. KAINS, Horticulturist Pennsylvania State College

[Note.—*My garden is among the mountains of central Pennsylvania and is very subject to the vicissitudes of frosty springs and autumns. Strange as it may seem the season is practically the same as that west of Port Arthur, Ontario, the parallelism being due to a balancing of the altitude of my region against the latitude of the other, for though central Pennsylvania is in latitude 41 and Port Arthur nearly 50, the latter place is only about 600 feet above sea level, whereas my garden is more than 1,300 feet, and is surrounded by mountains from which cold air descends nightly in vast volumes, thus keeping the region cool in summer, shortening the season and jeopardizing tender crops at each end of the growing period. We have even had snow here in June! In 1915 early beans, corn, tomatoes, and other tender crops were killed by frost on the night of May 22d, and similar crops were frost nipped on the nights of September 22d and 23d.*—M. G. K.]

I HAVE long found it a good practice to make a survey of the whole season's work in my garden about the time I take up the root crops for winter storage. This enables me to summarize the notes taken from day to day throughout the growing season and to relate the various features as well as to lay the foundation for a better garden plan for the following year. Acting upon this belief I spent most of an afternoon in the garden in early November criticizing my season's work, then nearing its finish. Every detail and every crop was made to pass in review and give account of itself. When I say that the area thus scrutinized is only 50 by 60 feet, or thereabout, it may seem

that a few minutes should suffice, but when it is known that in 1915 I sowed or planted something like eighty varieties of vegetables besides some flowers for cutting on this space it may be realized that the time I took is none too much to do the matter justice.

The first point of note is that the plan carefully drawn up in January, 1915, worked out admirably as a whole, but that I can improve upon it for 1916, as will be shown below. The unit distance of 15 inches between rows, except in a few cases arranged for beforehand, was ample, because each alternate row was a short term crop; that is, it required only a few weeks to reach maturity and be removed, thus leaving the space it occupied to crops that require a longer term.

This "companion cropping" system, as it is called by market gardeners, is one of the best methods of securing maximum quantity from minimum space in a short time. The crops I have found best for this purpose are transplanted lettuce alternating with early cabbage, using transplanted plants because the lettuce may be gathered before the cabbage needs the entire space. I did not follow this practice in 1915 because I had no means of growing the plants under glass, but will in 1916. A trucker friend of mine plants tomatoes between strawberries in newly set beds with good results. In my garden I have found bush beans do fully as well also with strawberries the first year. I have even tried small growing varieties of sweet corn between the strawberry plants with good results, but the berry plants were placed two feet apart, and the corn plants were cut when the ears were pulled for the table.

Succession cropping, which I also employed, instead of having the crops grow simultaneously and side by side as in the companion method, arranges for the complete clearance of the ground as soon as an early crop has been gathered and refills that area with a crop that requires the balance or sometimes only part of the balance of the season in which to mature. In my experience, the early crops best suited to this method are spinach, mustard, early turnips, set onions, and dwarf varieties of garden peas; and the ones to succeed them, bush beans, celery, late cabbage, cauliflower, Brussels sprouts, quick maturing sweet corn and late turnips.

There is yet another not so widely employed method which did better for me in 1915 than ever before, namely, "marker cropping," if I may coin such a term. By this I mean simultaneously sowing two different kinds of crops in the same row, one a vegetable whose seed sprout very quickly and which matures so rapidly it may be removed before the other, a slower germinating, slower maturing crop, needs the space. Best of all the vegetables which have served this purpose for me are those early varieties of radish that reach edible size in three or four weeks from seed sowing. The one great mistake to avoid in this plan is thick sowing. Never should the radish seeds be closer together than one inch (better two inches) in the rows of carrots, parsnips, parsley, beets, onions, fennel or other crops with which they may be successfully sown.

CHART PLAN TO SECURE LARGEST VARIETY AND YIELD FROM A GIVEN AREA

MARKER CROP	COMPANION	FIRST SUCCESSION	SECOND SUCCESSION	PARTNER	FULL SEASON
		Spinach	G. Bantam Corn	Winter Squash	
	Early Turnip				Am. Artichoke
		Mustard	G. Bantam Corn	Summer Squash	
Onion Sets					Salsify
	Onion Sets	Carrot	G. Bantam Corn	Cucumber	
Onion Sets					Parsnips
Lettuce Plants		Carrot	Tomato		
Radish					Scorzonera
Lettuce Plants		Beet	Tomato		
		Fetticus			Celery
Radish		Beet			
Radish					Chicory
		Early Pea			
	Lettuce Plants				Cardoon
	Early Cabbage				
		Early Pea			
	Garden Beans		Late Corn	Cantaloupes	
		2d Early Peas			
			Late Corn	Cantaloupes	
		2d Early Peas	Gladiolus		
	Late Cabbage		Late Corn	Watermelons	
		3d Early Peas	Gladiolus		
	Late Cabbage		Late Corn	Watermelons	
		3d Early Peas			
		N. Z. Spinach			
		Culinary Herbs			
		E'ly Bush B'ns	Winter Radish		
		Early Cabbage	Okra		
			Eggplant		
		E'ly Bush B'ns	Ruta Baga		
		Kohl Rabi	Peppers, Leeks		
	Cos Lettuce		Cauliflower		
		Carrots	Pole Beans		
	Cos Lettuce		Br's'ls Sprouts		
		Beets	Pole Limas		
		Spinach	Endive		
		Strawberries			

EXPLANATION.—**Marker Crops** (Col. 1) are planted simply to indicate the positions of rows of slower sprouting crops sown at the same time and in the same rows. The distances between individual "marker" plants should be two or three times as great as when the same crops are planted by themselves.

Companion Crops (Col. 2) are planted in the intervals between plants of their companions which temporarily do not need all the space. Early turnips, onion sets, lettuce and early cabbage companions are all sown at the *opening of the season;* late cabbage plants are placed between the corn hills *before midsummer,* but occupy the soil after the corn and melons are gone; the cos lettuce plants are set 15 inches apart in May or June, each alternate one early removed for use and a cauliflower or a Brussels sprouts plant put in its place in July, the balance used later.

First Succession Crops (Col 3), except New Zealand spinach and bush beans, are planted when the season opens; these are sown two or three weeks later than the first plantings, at a venture to escape a late frost either by protection, spraying or otherwise or in the hope that no late frost will occur.

Second Succession Crops (Col. 4) are mostly sown or transplanted between May 15th and June 1st. Gladiolus bulbs are planted beside the peas on the side toward the corn rows, partly when the peas are sown and partly one to four weeks later, being kept cold and dry until planted. Winter radish should not be sown before August 1st or it may run to seed or become woody and useless as a vegetable. Okra and eggplant may be placed between the maturing early cabbage between the last of May and the middle of June. Ruta baga will follow the early beans and will not need the space occupied by the okras and eggplants until after these have been killed by frost. Pepper plants may be set in late May and early June in spaces left by the kohl rabi. The pole and Lima bean seeds are sown at two-foot intervals among the carrots and beets the latter half of May. They don't need the space until after the root crops are harvested. These climbers are trained to cords hung from a wire stretched between posts from end to end of garden about seven feet above the rows. Endive plants are set in the rows left vacant by harvesting the early spinach.

Partner Crops (Col. 5)—squash, cucumbers, melons, cantaloupes—are planted like pumpkins among the corn after the season has become fairly settled.

Full Season Crops (Col. 6) are all sown when the season opens and left till it closes because they all need the full time in which to mature.

Last year I used radish with all the crops just named; in fact, I sowed no spring radishes by themselves, always with some other crop. To be sure we had radishes to burn, or rather give away, but the main objects of sowing them in this way were gained. The radishes being quick to sprout and having comparatively large "seed leaves" can be seen in three or four days or certainly within a week of sowing, so cultivation may start at once, a very important point for the well being of the slower crops.

Combinations of all these plans have worked well with me. For instance, I have had carrots with marker radish followed by sweet corn; onion sets followed by bush beans and these by late turnips; beets with marker radishes, followed by tomatoes and these by radishes and lettuce scattered broadcast during late summer; early cabbage and lettuce plants in the same rows and followed by late sown bush beans and these by lettuce and radishes!

Indeed, I have done even better than this; for earliest peas were sown during April in two rows 12 inches apart. When in blossom early corn and climbing beans were sown as partners in a drill between these rows, the seeds being dropped 15 inches apart, and a row of gladiolus bulbs planted about four inches on the outer side of one of the rows of peas. Cucumber seeds were sown in every fourth corn hill!

As soon as the peas were gathered the vines were removed and the ground hoed and top dressed with commercial fertilizer, thus leaving the corn in possession. As this grew the beans were provided with living "poles." The corn also protected the Gladiolus from the west (prevailing) wind so that not one of the 100 flower stalks needed staking, whereas all the Gladiolus planted without such shelter either broke down or had to be tied. When the corn was

gathered for the table each stalk was cut so the Gladiolus plants would have a good chance to ripen their bulbs.

The beans in this case bore remarkably well, but the cucumbers were a total failure, not because of the multiplicity of planting but because the heavy soil caked so badly after heavy rains that only one plant came up. In fact, all but four plants of the cucumbers, squashes, melons, cantaloupes and wild cucumber (for ornament) failed for the same reason, so that out of a total planting of 40 or 50 hills all told, I secured only half a dozen squashes and one cucumber! I have no doubt that in a favorable season or with transplanted "cukes" the plan would have worked as intended.

THE PLAN FOR 1916

Acting upon previous experience I plan my garden for 1916. The way I go about this is to consult the vegetable maturity table shown herewith, write the name of each vegetable (not necessarily the variety name), on a narrow strip of paper whose length varies according to the time required for the crop to mature—long slips for such crops as parsnip, salsify and Jerusalem artichoke, which require the full season to mature, short ones for radish, pepper grass and mustard which need only a few weeks, others of medium length for crops planted in early spring but matured before midsummer. Then there are the tender crops such as tomato, cucumber and corn which must be either started under glass or sown late to avoid late spring frosts. These are represented by slips with one pointed instead of square end so as to be readily distinguished from the others. The vegetables sown or planted as succession crops, after midsummer—late turnips, cabbage, celery, etc.—are represented by double pointed slips.

While this method may seem to require a good deal of time, in practice it does not. It certainly is the best of many I have tried, for it allows of unlimited rearrangement until a thoroughly desirable plan has been worked out. People who have never made plans but have relied upon their "common sense and experience" at planting time will be astonished at the quantity of produce that can be grown by following a plan.

In laying out, the long slips are placed first at double the unit distance between rows—in my garden, 15 inches. Alternating between these long ones the medium slips are laid. In the same rows with both long and medium are placed such of the short and the pointed slips as will fit in properly, according to the way the various crops will act as "marker," "companion," "succession," "partner" and "full season" crops.

After the workability of the arrangement has been tested by studying the slips in each row in relation, first to themselves, and next, to the row on each side, the plan of the garden is made by pasting the slips in proper position upon a diagram whose lines show the margin of the garden and the position of each row. The lines in the diagram are placed far enough apart to allow of pasting the slips without crowding. Pasting I think better than writing the name on a plan. It takes no more time if library or photographic paste is spread thinly on a piece of glass and the slips placed backs down upon it and then transferred to position on the diagram. The advantage of this over writing is that each slip, especially if of a different color from the sheet upon which mounted will show at a glance the nature of the crop — long, short, tender, etc., etc.

To the gardener familiar with the nature of each crop, writing is presumably as good as pasting. A plan well worked out is a wonderful time saver in spring and a still more wonderful producer of results in the garden, because every inch of space is filled at all times.

NUMBER OF DAYS VEGETABLES NEED TO REACH EDIBLE MATURITY

Artichoke, Jerusalem, 180	Leek, 130 to 150
Beans, String, 40 to 60	Lettuce, 50 to 70
Beans, Pole, 50 to 70	Melon, 110 to 130
Beans, Shell, 60 to 70	Mustard, 20 to 30
Beans, Lima, 70 to 90	Okra, 110 to 120
Beet, Turnip, 60 to 70	Onion, 130 to 150
Beet, Long, 150	Parsley, 90 to 100
Brussels Sprouts, 100 to 130	Parsnip, 140 to 160
Cabbage, Early, 100	Pea, 60 to 80
Cabbage, Late, 150	Pepper, 130 to 150
Cardoon, 150 to 180	Pumpkin, 100 to 130
Carrots, 60 to 70	Radish, Turnip, 20 to 30
Cauliflower, 100 to 120	Radish, Half Long, 30 to 40
Celery, Early, 100 to 125	Radish, Winter, 60 to 90
Celery, Late, 130 to 150	Ruta Baga, 70 to 90
Chard, Swiss, 40 to 50	Salsify, 100 to 130
Chicory, 150	Scorzonera, 100 to 130
Corn, Sweet, 70 to 100	Spinach, 40 to 60
Corn Salad, 40 to 50	Spinach, New Zealand, 60 to 80
Cress, 20 to 30	Squash, Summer, 50 to 70
Cucumber, 120 to 130	Squash, Winter, 120 to 130
Eggplant, 140 to 160	Tomato, 130 to 150
Endive, 120 to 140	Turnip, 50 to 70
Kohl-Rabi, 90 to 100	

The 50-60 ft. vegetable garden in the early spring. On left, rough as turned by plow in November; on right, raked and ready for seed drills

July. Corn at left. Lettuce with dwarf Lima Beans. New Zealand Spinach nearly ready. Second sowing of dwarf Limas. Peas already grown and gathered

Late in May. Early Peas with Sweet Peas and China Asters on their right. Corn and Carrot coming along. Poultry manure on ground

Late July. Corn well developed and Gladiolus to right. Carrots nearly edible size. Wayahead Lettuce and Leeks in same row

Tested Planting Table for the Vegetable Garden

S. Prentiss Baldwin

[Editor's Note.—*This is not a theoretical table, but one that has been evolved from actual experience in running a vegetable garden. The original table was published in* The Garden Magazine *for April, 1910, and, as now presented, shows the improvements and modifications that continual use have shown to be desirable after a total experience of eight consecutive seasons. It would hardly be possible to present a table that could be more practical. The compiler states that quantities are figured on a basis of twenty people, and the information is given on the assumption (which in his case is an actual fact) that the man who does the work merely follows directions to the letter.*]

THIS chart was devised to bring order out of chaos, and to enable unskilled labor to actually grow a crop of vegetables successfully. There is no mystery about it. A busy man can hand this schedule to any able-bodied man who can read English, and then forget all about the thing. If the instructions are followed, word for word, step by step, there will be a constant and evenly distributed supply of vegetables throughout the season.

The varieties here named are mostly old standard varieties. These are safe to use. The quantity to plant is estimated for twenty persons. You can adjust this to your needs. We require the planting done on the dates named unless weather forbids, and in that case it is only delayed to the first good day.

Our soil (in Ohio) is a heavy clay. We are compelled, therefore, to make a special soil for the melon tribe. Heavy applications of manure are plowed down in the fall, and commercial fertilizer is given in the spring.

The real way to use this schedule is to scratch off the vegetables you do not like, and change the amounts to suit your requirements.

NAME	VARIETY	TIME TO PLANT	TIME TO MATURITY	QUANTITY	DIRECTIONS
Artichoke, Jerusalem		April 1, outside	Ready in 7 months	100-foot row; 2 quarts tubers to 100 feet	Hardy Perennial. Plant tubers 6 inches deep. Rows 5 feet apart: 2 feet apart in row. Fine for soup or boiled.
Asparagus	Palmetto or Argenteuil	April, outside		300 plants	Hardy. Plant 2-year roots. Rows 2 feet apart; 8 inches deep; 1 foot apart in row. Rich moist soil, mulch with manure, salt well.
Bush Lima Beans	Fordhook	April 1, under glass May 1, outside		30 pots; 150-foot row; 1 pint seed	Tender. Set out in May. 2 inches deep. Rows 2 feet apart.
Pole Lima Beans	King of Garden	May 15, outside	10 weeks	50 hills; 1 pint seed	Tender. 2 inches deep. Hills 4 feet apart. Pinch off at 6 feet high
String Beans	Hodson Wax Bountiful do do do do	May 1, outside June 1, outside July 1, outside	6 weeks	25 feet each; 1 pint seed to 75-foot row	Tender. 2 inches deep; 6 inches apart in row; rows 2 feet apart.
Beets	Crosby's Egyptian Crimson Globe	April 15, outside May 15, outside June 15, outside July 15, outside	9 weeks	75 feet each time; 1 ounce seed to 50 feet	1 inch deep; 6 inches apart in row; rows 2 feet apart. Soak seed over night. Winter in sand or pits.
Brussels Sprouts	L. I. Half Dwarf	March 15, under glass May 15, under glass	20 weeks	100 early 100 late (1 packet seed)	½ inch deep; 1 foot apart in row; rows 2 feet apart. Hang in cellar for winter.
Cabbage	Copenhagen Market Drumhead Savoy	March 15, under glass May 15, under glass Transplant to garden	18 weeks	150 plants 300 plants (1 packet seed)	Hardy. ½-inch deep; 2 feet apart in row; rows 3 feet apart. Manure well. Winter upside down in pits.
Cauliflower	Dwarf Erfurt or Earliest Snowball	March 15, under glass May 1, under glass Transplant to garden		200 plants 200 plants (1 packet seed)	Hardy. ½ inch deep. 2 feet apart in row. Rows 3 feet apart. Manure well.
Carrot	Half-long Danvers	April 15, outside June 1, outside	15 weeks	75 feet 75 feet (1 packet seed)	Hardy. ½ inch deep; 6 inches apart in row; rows 2 feet apart. Winter in sand or pits.
Chard	Lucullus	April 15, outside	8 weeks	30-foot row; 1 oz. seed	Hardy. 1 inch deep; 1 foot apart in rows; rows 2 feet apart.
Celery	Golden Self-blanching Giant Pascal	March 15, under glass May 15, under glass	18 weeks	200 plants 300 plants (1 packet seed)	Hardy. Set out in May; barely cover. ½ foot apart in rows; rows 3 feet apart. Rich, moist soil. Transplant twice. In August bank up to blanch. Winter in pits.
Chicory	Witloof	May 1		150 feet; 1 ounce seed	Hardy. ¼ inch deep. Rows 2 feet apart. Tops forced and blanched for salad in winter.
Corn	Golden Bantam Country Gentleman	May 1, outside May 15, outside May 15, June 1, June 15, July 1	Early, 9 weeks; late, 11 weeks	125 hills each time 1 quart to 200 hills	Tender. 2 inches deep; 2 feet apart in row; rows 4 feet apart. Manure and remove suckers.
Cucumber	Cool and Crisp or White Spine	May 1, outside June 1, outside July 1, outside	9 weeks	5 hills each time; 1 oz. seed to 50 hills	Tender. 1 inch deep; 4 feet apart.
Endive	Green Curled	July 1	8 weeks	100 feet; 1 oz. seed	Hardy. Rows 2 feet apart; 1 foot apart in row. Transplant to dark cellar to blanch for winter.
Eggplant	Black Beauty	March 1, under glass, Transplant to garden with good heat	15 weeks	50 pots (1 packet seed)	Very tender. ½ inch deep; 2 feet apart in row; rows 3 feet apart. Rich and moist. Store dry for late fall use.

NAME	VARIETY	TIME TO PLANT	TIME TO MATURITY	QUANTITY	DIRECTIONS
Kale	Dwarf Scotch Siberian	May 1, under glass Transplant to garden like cabbage July 1, outside	20 weeks	100 plants 200 feet; 1 oz. seed	Hardy. ½ inch deep. 1 foot apart in row. Rows 2 feet apart. Mulch for winter.
Kohl Rabi	Early Vienna	April 15, outside June 1	3 months	100-foot row; 1 oz. seed for 150 feet	Hardy. ½ inch deep. Rows 1½ feet apart; 6 inches apart in row. Grow and use like turnip.
Lettuce	May King or Big Boston	March 1, under glass March 15, under glass Outside every 2 weeks to September 1	6 weeks	50 feet 50 feet 1 oz. seed to 3,000 plants	Hardy. ¼ inch deep; rows 1½ feet apart. Rich. Shade and water in summer.
Muskmelon	Emerald Gem Osage or Early Hackensack	May 1, outside May 1, outside May 1, outside	6 weeks	20 hills each time 1 ounce seed to 50 hills	Tender. 1 inch deep. Hills 4 feet apart. Pinch off ends of shoots. Make special soil of sand and manure.
Watermelon	Coles Early Halbert Honey	May 1, outside May 1, outside		10 hills each time; 1 ounce seed to 30 hills	Tender. 1 inch deep. Hills 6 feet apart. Make special soil of sand and manure. Pinch off ends of shoots at 3 feet.
Okra	Dwarf Prolific or Long Pod	May 1		25 feet; 1 packet seed	Tender. 1 inch deep; rows 3 feet apart. Young pods for soups.
Onion	Sets Yellow Danvers Prizetaker	April 1, plant sets Seeds April 15, outside Seeds April 15, outside	18 weeks from seed	200 feet each time 1 ounce seed to 150 feet 1 quart sets to 100 feet	Hardy. Seeds ½ inch deep; sets 2 inches deep. Rows 2 feet apart. Dig and dry for winter.
Parsley	Triple Curled	April 15, outside	8 weeks	20 feet (1 packet seed)	Hardy. ½ inch deep. 6 inches apart. Rows 2 feet apart. Soak seeds over night. Seeds slow to start.
Parsnip	Hollow Crown	April 15, outside	15 weeks	150 feet; 1 ounce seed to 200 feet	Hardy. ½ inch deep. Rows 2 feet apart. Seeds start slowly. Winter in place or in pits. Improved by frost.
Peas	Gradus or Thomas Laxton Telephone	April 15, outside May 1, outside May 15, outside May 15, outside June 1, outside June 15, outside July 1, outside July 15, outside	8 weeks	150 feet each time 1 quart seed to 150 feet	Hardy. 3 inches deep early varieties; 4 inches deep late varieties. Early in double rows; late rows 3 feet apart. Moist soil.
Pepper	Chinese Giant	March 1, under glass Set out in May	20 weeks	25 pots	Very tender. ½ inch deep. Rows 2 feet apart. Start in good heat. Hang in cellar for winter.
Potatoes	Peach Blow Carman No. 2 or Banner	April 15 (early) May 15 (main crop)	12 weeks	1 peck to 100-foot row; 8 or 10 bushels to acre	2 inches deep, early; 5 inches deep, late. Rows 3 feet apart. Sprout before planting.
Pumpkin	Winter Luxury	May 15, outside	15 weeks	20 hills; 1 ounce seed to 50 hills	Tender. 6 feet apart. Manure. Winter warm and dry.
Radish	French Breakfast	March 7 under glass and every 10 days	4 weeks	10 feet each time 1 oz. seed to 100 feet	Hardy. ½ inch deep. Soil light and rich.
Salsify	Mammoth Sandwich Island	April 15, outside	18 weeks	150 feet 1 oz. seed to 100 feet	Hardy. ¼ inch deep. Rows 2 feet apart. Winter in place or in pits.
Spinach	Victoria New Zealand	April 15, outside May 1, outside May 1, outside	5 weeks	75 feet 75 feet 75 feet 1 ounce seed to 200 feet	Hardy. 1 inch deep. Rows 2 feet apart. Very rich soil. Cut branches of New Zealand all summer.
Squash	Delicata Early Golden Custard Crookneck Hubbard	May 1, outside May 1, outside May 1, outside May 15, outside	7 weeks 15 weeks	6 hills each time; 1 ounce seed for 25 hills 20 hills	Tender. 1 inch deep. 4 feet apart. For Hubbard make special soil of sand and manure. Plant 6 feet apart. Winter warm and dry.
Sweet Potato		Bed old potatoes in hotbeds in April Set out sprouts May 15	6 months	150 feet 3 pounds potatoes to 100-foot row	Tender. 2 feet apart in row; rows 3 feet apart. In deep sand.
Tomato	Earliana Crimson Cushion Golden Queen	April 1, under glass Set out in May	18 weeks	50 plants 100 plants 50 plants (1 packet seed)	Tender. ½ inch deep. Keep hotbed cool. 3 feet apart in row; rows 3 feet apart. Pinch off side shoots. Hang in cellar for early winter.
Turnip	Early Milan White	April 15, outside June 15, outside	9 weeks	25 feet 25 feet 1 ounce seed to 200 feet	Hardy. ½ inch deep. Rows 2 feet apart. Winter in pits.

Pin-Money Crops for the Home Gardener—By F. F. Rockwell

III. Tickling Profits With Cut Flowers

[Editor's Note.—*From time to time* The Garden Magazine *is the recipient of letters from more or less successful amateurs who are consumed with a desire to convert their hobby into a money maker. They have been told by enthusiastic friends, or have read, of the prices brought in the city flower shops by the self same flowers that they grow so successfully. They want information as to packing and shipping, and think they should be ready then to go into the business of outdoor flower growing. This article will serve as a general reply to these enthusiasts who see too rosily.*]

"CUT flowers for profit" seems to be a hobby enthusiastically recommended by typewriter gardeners for would-be "get-rich-quick" flower amateurs. There are profits in flowers: the job is to get them out. In other words, the whole thing is largely a question of *marketing*. The flowers are inexpensive to grow, and more certain than many vegetables. The problem is how to sell them all, or to get a big enough price for those that you do sell to reap a profit on the whole transaction.

On paper it looks something like this: Blue Cornflowers, Bachelor Buttons, sell for five cents apiece. In my little garden of one-eighth of an acre I can grow 1,815 plants, spaced 18 by 24 inches, and each plant should produce at *least* ten good flowers. 18,150 nickels=$907.50. Allowing 40 per cent. for expenses, commissions and loss, which certainly should be ample, leaves $544.50. Perhaps that isn't as good as owning munitions stock, but still a very acceptable return, as the work is pleasant and the capital required small.

The Garden Magazine is not a "trade" paper; it has no ax to grind, and nothing to gain by discouraging energetic amateurs from competing with the professional florists. But I am going to devote a few sentences right here to showing any one, who may be thinking of making money in this particular way, why it is an idle dream.

In the first place the market for cut flowers during the spring, summer and early fall months is limited. There is comparatively little demand for flowers, and many people who buy in the winter, in summer grow flowers in their own gardens, or bring them in from the country on their daily or weekly auto trips. At times neither growers, commission men nor retailers are making anything on the flowers they handle. The only reason they handle them is because they are losing *less* than they would to do nothing for three or four months. Furthermore, many cut flowers are practically a by-product. Gladioli and Dahlias, for instance, of the finest kinds are produced by the tens of thousands where the *bulbs* are grown. If you could look for a minute at the hundreds of acres which annually break into sheets of color in certain sections of New York, Massachusetts, Pennsylvania, New Jersey and Maryland, the blooms on which the owners would be glad to dispose of for the cost of gathering them wholesale, you would never dream again of growing them for shipment to a city market to sell. Even the flowers that are grown for cutting—Sweet Peas, Asters, Corn Flowers, and so forth, are practically a by-product with many growers, to help maintain their organizations during the barren months. And naturally the commission houses give the preference to men with whom they deal the year round! So, if you have been thinking of growing flowers in a small way for the commercial market, my advice decidedly is, "forget it."

But it *is* possible to make pin-money out of cut flowers. By that I do not mean that every one who can grow them successfully will be able to make enough during the summer to buy a new winter suit. The personal equation is the deciding thing; and conditions must be at least not unfavorable. In the following paragraph several methods of disposing of your flowers after you have grown them are mentioned. After studying and comparing them, you can quickly form a pretty good opinion as to which would be the most likely to prove successful in your own case. I would, by all means, advise that you select *one*, and stick to that. If you find it cannot be made to work, try another. But, before giving up the one that you first try, be satisfied that it is the method, and not timid, half-hearted effort, or carelessness on your part, in attempting to use it, that is at fault.

The method that I consider most advisable, where conditions are such that it can be utilized, is that of "the roadside flower shop." The "shop" may be a bench under a shady tree, and the display windows the neatly kept flower garden where the blossoms are always fresh and attractive. This scheme of selling has three very great advantages; in the first place, you get retail prices, all there is in it; in the second, there is no delivery expense—no packing material, containers or conveying to the express office or to the local place of sale, to say nothing of transportation charges; in the third, there need be little or no waste of time in waiting for customers, and such flowers as you do not sell, you can at least use about the house or give away yourself.

This is a "roadside" Sweet Pea garden in Massachusetts. The great supply of flowers sold came from another garden, but the growing vines here helped to advertise the stand. Some mistaken customers like to see their flowers picked

The essential thing for this system is a well traveled highway near the home, preferably one of the main automobile routes through your section. This has everything to do with the amount of your sales. It should be a natural stopping place; car owners do not like to stop at the beginning of a steep grade, in the blazing hot sun, or just before a sharp curve, nor where the machine cannot be run well to the side of the road so that it will be out of the way of passing traffic. First of all, then, the place should be convenient; second, it should be made attractive—this is where you must use your ingenuity as an advertiser—something striking that the passer by cannot help seeing, first, and, in addition, something which he or she will want to stop to look at more carefully and closely once the eye has been caught. On a trip through three of the New England states this summer, I saw scores of places where some such scheme was being attempted. But the majority of them, however, were evidently made up on the inspiration of the minute. In the near future competition along this line will undoubtedly become so great that only those who use skill and ingenuity can hope to capture enough "trade" to make the thing profitable. There is another important thing which apparently few people realize. Very seldom indeed, will a car stop and go back. Whatever you do to arrest attention should be placed where it will be seen in advance of your display; then the lady in the back seat will have time to tell the driver to slow down, and he will be ready to stop his car if things look worth while to the occupants. That is nine-tenths of your sale for very seldom will a car stop without something being purchased; the desirability of what you have to sell and your skill as a salesman will determine how much. Two of the best signs which I remember were something like those shown below.

Not far from the well referred to on one sign was an attractively arranged flower booth displaying goods with price cards attached.

SLOW DOWN!
A Bad Turn
of the neck certain if you pass our gardens at full speed

STOP
For a Cool Drink!
This well full of ice-cold Water
Help Yourself

You may not have an old-fashioned well handy, but possibly there are other equally good advantages which could be utilized. I stopped at one shady place among some pines which evidently was made use of by many parties stopping for lunch. A sign might have been placed here reading something like this:

"Lunch Parties Welcome. Clear cold water can be had at the next house for the asking. Don't fail to see our flower gardens and take a box of fresh blooms home with you." This sign could not fail to attract attention even from those who would not stop for lunch.

Whatever sort of a sign you use, do not fail to make it short and pithy. Use plain black block letters on a light background. Also it should face in the direction of approaching cars and not be put parallel to the road. Make two signs if necessary.

In many large towns and small cities there is the possibility of growing cut flowers in the summer for local demand. In such places it is often the case that there is no local florist, but that some store in the town, the woman's exchange, or the druggist, or the jeweler, handles cut flowers as a side line, receiving the winter supply from some neighboring city; and possibly bedding plants, etc., from a local market gardener, who is too busy with his vegetables during the summer to grow cut flowers. Here, provided the proper conditions exist, it may be possible for the amateur flower grower to do a nice little pin-money business during the summer and early fall months. But be certain that the right conditions do exist before you start; also determine in advance what flowers are likely to be in demand.

Even near larger cities, where there may be a local florist or two, there is sometimes a possibility for the amateur grower to make good by growing *one* thing supremely well.

It is sometimes possible to find a few customers who will take enough flowers to make it worth while to cater especially to them. Most hotels use flowers in quantity, but, of course, they will not pay retail prices. (For the keeping of cut flowers, see page 96.)

THE MONTH'S REMINDER

MARCH, 1916

For reckoning dates, the latitude of New York City is generally taken as a standard. In applying the directions to other localities, allow six days' difference for every hundred miles of latitude

THE sun is getting up earlier and climbing higher every day. Remember that the few weeks remaining before the frost is "out" and the first seeds "in" gives your *last opportunity* to rectify any sins of omission or commission. Glance over your garden record once more and carefully look over the list of things which should have been done for the "spring opening" which is nearly due.

This Month's Big Job

This month gives you a golden opportunity to have the earliest and the surest garden in your vicinity this year, provided you have the equipment for growing your own plants. I become more convinced each year that nothing in early gardening pays so much as the time and trouble spent in getting extra strong, healthy, well developed plants ready for transplanting when gardening outside can begin. There are cheap, modern conveniences in the form of paper pots, dirt bands, and paper "fillers," with individual compartments made like an egg-crate, to go into flats. The small grower will find it well worth while to get individual "pot plants" for even such things as cabbage, cauliflower, and onions. The tomatoes that are set out for extra early, if they have been put into dirt bands some weeks before, may have the first settings of fruit as big as a quarter dollar before they go into the garden. Of course they must be handled carefully and given plenty of room in the frames. Tend strictly to your work, therefore, of transplanting and potting in order to get the very best plants which it is possible for you to produce.

Transplanting and Potting

When Ready. Transplant seedlings of flowers and vegetables sown last month *just as soon* as they are large enough to handle—as a rule the earlier the better—especially if crowded. Water thoroughly the day before transplanting, so the soil will be crumbly. Pot up the cuttings just as soon as the new roots are well started, a quarter to a half an inch long.

Preparations. To prepare for transplanting, put an inch layer of manure in the bottom of the flat, fill level with sifted soil, and water thoroughly. Do this the day before wanted for use. The flats, if set cross-wise, will not pack each other down. Have bench or table handy, waist high. For the first potting, use rich compost and soil mixed together, or mix a little bone dust with the soil—a quart or so to the bushel. Mix this up a week or so in advance. For re-potting, use 3½-inch or larger pots, crock each pot, and put an inch or more of manure or light compost in the bottom, packing the pots in rows, handy for use.

Transplanting. Having everything in readiness, remove a handful of seedlings carefully, using a transplanting fork if available. (One may be purchased for a quarter.) Separate the little seedlings carefully (keeping the roots intact as nearly as possible) and lay them out on a shingle or piece of glass, which permits moving them about, and picking them up one at a time, readily. "Spot off" the flat full of soil into holes, in straight rows, corresponding to the number of plants you want in it. For commercial purposes 75 to 100 are put in a flat; for home use 48 to 60 or so will give better plants, and 24 to 36 better still. In properly prepared soil you will need no "dibber" but your forefinger, though one may be used if desired. The plant should be set to a depth which will leave it standing upright and stiff, yet not get any soil over the heart or crown; the tendency, however, usually is to set too shallow rather than too deep. The holes should be large enough to take the roots without crowding them. After dropping the soil into place with the left hand, press the soil about it, with a light downward pressure, with the ends of the forefingers and thumbs—and the job is done.

Potting Off. Rooted cuttings should be put at first into "thumb" pots; large geranium cuttings may require 2½-inch pots, but 2-inch will be big enough for most things. To do the work conveniently, have soil and pots on the bench, and flats handy to set the pots in, so that a number at a time can be handled in moving them about. Fill a pot level full of soil, make a hole with the forefinger, set the cutting well down into it, but not over two thirds of the depth of the pot, then rap the pot gently but firmly against the bench, *before* pressing the soil about it with the thumbs: otherwise you will compact the soil on the surface, and leave it loose beneath, which is exactly the reverse of the condition wanted. If the operation is done properly, the cutting will not be at all loose, or wobbly, in the pot.

After Care. Both cuttings and seedlings should be well watered after transplanting. The sub-watering method is better for the flats. If a watering can must be used, employ a fine spray, and be very careful that the little seedlings are not flattened down. Keep in a shady place for a few days, or shade with newspapers during the noon hours of bright days. In putting the flats where they are to remain until taken outdoors, see that they are level and rest flat upon the soil or bench. Otherwise they will not be evenly wet when they are watered. The little pots should be sunk in gravel or soil or ashes up to the rims to prevent their drying out too quickly. They may at first be placed touching each other, but as soon as the plants begin to crowd in the slightest, they should be gone over and rearranged, allowing about two inches between them each way. The vegetable plants should be kept in the greenhouse only until they have got a good start: remove them to the frames for further growth, and for hardening off later, just as soon as there is no danger of their being touched by frosts at night.

Repotting. The bedding plants, with the exception of the small edging plants, such as ageratum and sweet alyssum and cuphea (cigar-plant), should be shifted at least once, and preferably twice, before they are ready to go out of doors; at first from two to three-inch pots, and then to fours. They should be changed *as soon* as the rapidly developing roots have grown a net-work around the outside of the ball of earth. In shifting to larger pots, make the same preparations as before, remove the plant by inverting the pot and tapping its edge on the bench, and place the plant in the new pot, which is first partly filled with soil, so that the top of the root-ball will be about an inch below the rim of the pot. Then fill it not quite level full, and firm as above, but with a stronger rap.

Paper Pots and Dirt Bands. These may be bought "in the flat" and made up over a form. For flowers, and particularly for vegetables that are to be set out in the garden later, they have the advantage over clay pots of being lighter, and holding much more soil; and as they are made square, and fit closely together, they do not dry out nearly so quickly. Much stronger plants can be grown in them than in clay pots of the same size. The most convenient way to handle them is to make them up and pack them in deep flats, sprinkle a half-inch or so of manure in the bottoms, put soil over this, put the plants well down in, and add enough more soil to fill them almost level full. They are especially convenient for starting plants of beans, corn, melons, etc., as well as for the last transplanting of tomatoes, peppers and eggplants.

Plant this Month

¶ **Under Glass, Vegetables:** Early in the month celery, kohl rabi, okra, peppers, egg-plant and tomatoes. Also if not already started, cabbage, cauliflower, lettuce, beets: toward the end of the month, lima beans, corn, melons, and squash, in dirt bands or paper pots.

¶ **Under Glass, Vegetables To Remain:** Set out as soon as ready, plants of tomatoes, melons, cucumbers, cauliflower, beets, etc., in permanent positions: further sowings of radish, lettuce, carrots, etc., in frames.

¶ **Under Glass, Flowers:** Seeds of annuals and perennials to be transplanted later, such as asters, begonias, cannas, celosias, cobœa scandens, coleus, gypsophila, nicotiana, petunia, ricinus, salvia, phlox, verbenas, zinnias, and others mentioned last month if not already sown.

¶ **Under Glass, Bulbs And Tubers,** for setting out later, such as tuberous rooted begonias, cannas, dahlias, callas, caladium, and gladioli for extra early results, etc.

¶ **Out Of Doors:** As soon as the ground can be worked, first plantings of beets, cabbage (plants), celery, kohl rabi, lettuce, onions, onion sets, parsley, peas, early smooth; radish, spinach, swiss chard, and early turnips. Also sweet peas.

Early This Month

In the greenhouse attend first of all to the planting of such seeds as may not have yet been put in. Be sure that the soil used to cover peppers and eggplants is extremely light and loose. Remember also that too much watering is as likely to prove fatal as too little. Keep the surface of the soil moist by shading with a newspaper or covering with glass, rather than by frequent wetting. Be careful not to leave any sprouting seeds in the shade: twenty-four hours' neglect may spoil them. Attend promptly to any transplanting, repotting, or moving of plants requiring attention.

Prize Sweet Peas

THERE is only one sure way of having the first and the finest sweet peas in your neighborhood: that is to start them now as individual plants and have them to set out early next month. They can be started in individual clay pots but it is far more convenient to get a few two-inch dirt bands or fillers, fill them with rich compost and plant two or three seeds in each. If you have new, high-priced varieties make assurance doubly sure by pre-sprouting the seeds—soak twenty-four hours in luke-warm water, roll in moist canton flannel and put in a moist, warm place; examine carefully so as to be sure to get the seeds just as they are about to germinate, then you need put only one in a pot and will be sure of getting a good stand. Be sure to get them out into the frames at least a week before you want to plant them outdoors so that you will have them thoroughly hardened off.

Decorative Plants. Any of your permanent tub, box or large pot plants that have not already been shifted should be re-potted now. They can go back into the same receptacles, but new soil will help. It is well to re-char a tub before replanting; paint the interior with kerosene, and fire, extinguishing if necessary before it eats into the wood to any extent. Most plants of this kind require an abundance of leaf mould in the soil. This, and bone, will keep them growing vigorously.

In the Frames

ATTEND regularly to watering and ventilation to keep the plants growing directly in the soil and the plants in flats in a healthy and vigorous growth. Keep the glass off as much as possible, while maintaining a suitable temperature. Plants growing in the soil in the frames need cultivation as much as though they were growing in the garden. A light top dressing of nitrate of soda watered in will help in keeping the growth up. Watch out carefully for the green fly or aphis. Be free with tobacco dust as a *preventive;* it costs little and will not hurt the plants.

Pruning and Spraying

DON'T delay pruning the grapes as it is better to get it done before the sap starts. All pruning should have been attended to before this, but if it wasn't, get after it immediately. See that all cuts are made close up to the parent limb or trunk, and painted over. Don't let any one monkey around *your* trees with a "double-edged" pruning saw.

It is not too late to use the strong, effective winter sprays *if you are prompt!* If you have any old ragged trees scrape

them before spraying. The dead, rough bark makes an ideal shelter for various eggs, insects and spores. Prevention is far better than cure.

Still Clean Up

EVEN if you had a general clean-up in the fall, there will be some winter debris scattered about to be got rid of. All brush and "mummy" fruit under your fruit trees, and particularly under your grapes, should be carefully gathered and burned. The smell of the first spring bon-fire is as sure a sign of returning spring as the first swallow. Get your cleaning up done early before other work is ready. Make a thorough job of it; after you have finished up the outside, take some cold or rainy day to put tool shed, lawn mower and all your garden paraphernalia in "apple-pie" order. (By the way, have you ordered those repairs or new attachments yet—if not, don't delay it again.)

Toward the End of the Month

It is time now, if you live in the Northern states, to get sweet corn, lima beans, melons, squash started for planting out in May; allow from four to six weeks—four is enough for sweet corn. Remember that it is not safe to set out *plants* until some days later than it would be to plant the *seed*.

That last paragraph is for the half up-to-date gardeners. If you are up-to-date you will have bought, or made yourself from cracker boxes, individual forcing frames or forcers which may be covered either with glass or with plant protecting cloth. With these your first hills of melons, lima beans, and cucumbers and also pepper, egg and tomato plants, can be set out a week or so before those of your neighbors.

Treatment for Frost

IN HARDENING off your plants, if Jack Frost surprises you some night when you have left the glass off, shade the plants from the sun in the morning, first giving them a thorough soaking with the coldest water you may have available. This "draws" the frost out from the leaves gradually, very greatly lessening the danger of injury. Your cabbage, beets and lettuce plants should have a bronzed or purplish, hardy, tough appearance—quite distinct from the color they had in the greenhouse—before being fit to set in the garden.

Small Fruits. At the first sign of the swelling buds you may easily distinguish what wood has been injured by winter; then thoroughly prune currants, gooseberries, raspberries, blackberries, etc. There is very little danger of overdoing this; usually these things are allowed to make altogether too much wood to get good fruit.

Get the Mulch Off

AS THE hard frosts let up, and the "peepers" in the swamps welcome the spring, begin removing the mulch from beds of hardy perennials, Roses, etc. It is best not to take it all off at once; just as growth actually begins, remove part, and a week or so later the rest. It is well to keep this mulching handy to use later on the rose beds, and currants and gooseberries. Do not uncover the strawberries yet; keep them back and protected as long as possible, so the early blossoms won't be nipped by late frosts.

Walks and Drives

ANOTHER good job to get out of the way now, before much planting can be done, is fixing up the walks and drives. Have your edger sharp but don't make the common mistake of cutting back into the sod. The grass should grow right down to the soil: a miniature "bank" two or three inches high will be sure to get ragged and also dries out in hot weather. Adhere to the original lines, even if it is necessary to add a piece of turf here and there, tamping it down *hard* with the back of the spade or a lawn tamper. Be sure that all drains and gutters are clean and in repair, to avoid injury from the heavy rains during the next few weeks.

Keep the Frames Busy

AS SOON as the hardier things, such as cabbage, lettuce, etc., are out of the frames, move out the second lot of plants and follow these with tomatoes, etc. Most of the bedding plants will do as well in the frames, as soon as the night temperature does not go below 40 or 45, as they will do indoors. This will give you space for tomatoes, melons and cucumbers, cauliflower, etc., inside.

Going to Graft?

HAVE you all the varieties of fruit on your place which you desire? If not, without adding to the number of trees you can have more. You can buy a "whip" of buds or make them yourself from your own or a neighbor's trees. They must be cut while dormant. Select straight, clean twigs of new growth, about the size of a lead pencil. Label carefully, and keep in a moist, cold place, or buried. Read the article on Grafting on another page of this month's number.

Shelters for Tender Seedlings

EVERY gardener knows the need of shelters, and many resort to shingles, flower pots, boxes, etc., but I have evolved a neat little cheesecloth tent for the purpose, which I cordially recommend to other amateurs. It will protect the tender seedlings from scorching sun and drying winds, from beating rain and hail, from biting pests and frosts, and will serve all summer to mitigate the extremes of our fickle climate.

This little shelter consists of a pair of frames, hinged so as to open at any angle or to close flat, the frames being covered with cheesecloth. The ends of the frames are made of pieces of hard wood two feet long, two inches wide and one half inch thick, each pointed at the lower end, and hinged to its neighbor at the upper end by means of a screw. The cross pieces consist of laths, two being placed near the top and two at six inches from the points. They are nailed with lath nails to the edges of the end pieces.

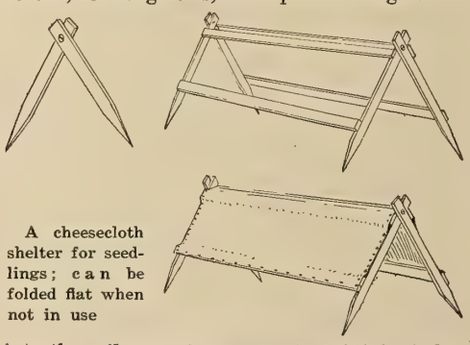
A piece of cheesecloth four feet long and three feet wide is now tacked along the lower laths and up the end pieces, covering the ridge, but not fastened to it. (See sketches in next column for details of the shelter.)

The cost for twenty-five tents is $4.09, as follows:

100 end pieces at 1c each	$1.00
Tacks	.30
Nails	.25
50 screws	.25
1 bundle of laths	.25
34 yards cheesecloth at 6c	2.04

This is a little more than sixteen cents each for material. The work can be done now, before the actual rush of outdoor gardening commences.

These little shelters are easily placed, end to end, for long rows, their points being forced



A cheesecloth shelter for seedlings; can be folded flat when not in use

into the soil as anchorage against fitful winds; and when not required, they can be conveniently folded and stacked flat, occupying but little space.

We have also made some to stand on end like fire screens, by sharpening the laths and letting the ends project. These are very handy for shading tall plants, or newly planted shrubs or vines.

Connecticut. H. W. F.

Plants for a Pink and White Combination

A COMBINATION which makes a beautiful fall bed is pink and white Cosmos, Japanese Anemones and Asters. The Cosmos should be started early; plant the seeds in a hotbed in March, or in boxes in the house. If they must be planted outdoors, put them in as early as the ground is fit. Cosmos will need a support when it gains its growth, and a strip of five feet wide wire stretched between posts is most satisfactory. It will not show, as the cosmos will screen it. Procure plants of Aureole, Elegantissima, Mont Rose, Queen Charlotte Anemones, all pink; Whirlwind, Japonica alba, Coupe d'Argent, etc., white. Anemones need plenty of water and do not mind a little shade. In front of them put the asters—low varieties such as dwarf chrysanthemum flowering, pink and white. The asters must be started early in hotbeds also, or the young plants may be bought at small expense. In transplanting the asters to their permanent places, put a little ashes about the roots.

In August, give the whole bed an occasional watering with liquid manure, and the result will be a mass of pink and white bloom well worth working for.

New Jersey. Mary T. Richardson.

Early Peas That Satisfy

PEAS need the cool weather to develop best, and even the wrinkled varieties can stand cold better than heat. The little round-seeded sorts do not seem to me worth planting; it is more profitable to wait a few days for the early wrinkled kind. Gradus is a particularly satisfactory early pea, a fine cropper, sweet and fine flavored, and it can be planted as early as a hard-seeded variety by using the following method:

As soon as the ground can be worked in the spring—about the middle or last of March in our vicinity—make a trench about eight inches or so deep. If you had the garden spaded up

in the fall, so much the better. In fact, it is best to have the space where the first peas are to be planted dug and well raked in the fall. Throw a thin layer of well-rotted old manure in the trench, and sow the peas on this. It sounds fatal, but I have never failed of a fine, early crop when I have used this method. If it seems too risky, sprinkle a light dusting of earth over the manure before sowing the seed. Cover the trench, and tread down with the feet. Gradus vines grow about three feet tall, and do best when supported. If possible, put in the brush, chicken wire or whatever you use, when planting the seed.

For the second and third planting, make the ground rich but omit manure in the trench. Quite Content is a fine pea for the later plantings, large-podded, delicious and prolific. It grows about four or five feet tall; and if a dwarf kind is preferred, British Wonder is fine. Perhaps the old standby, Telephone, is as good as any for late planting.

It does not pay to make plantings much after the middle of May, except in a cool Northern climate, but before that peas may be put in every two weeks. It is possible to have a late crop by planting little hard-seeded "first-earlies" in August, but the vines often require spraying, and do not bear as well as the spring sowings.

New Jersey. M. T. RICHARDSON.

Platycodon "Winter Killing"

I WAS interested in Mr. E. S. Johnson's letter in the January issue of THE GARDEN MAGAZINE regarding Platycodons, and whether or not they winter killed. Two seasons ago, when we had a terrific winter in the Berkshires, and lost great quantities of perennials of all sorts, even iris which had been established for years, my Platycodons which were in an exposed place, were not in the least affected. It is quite true, as Mr. Johnson says, that nothing is easier than to kill them in the spring weeding, not only after they sprout, but even before. They send up their shoots from a considerable distance below the surface—six inches at least in my beds—and they can be destroyed with a hoe before they are above ground, if their position is not marked. I have an established double row of fine plants, about twenty feet long, which form, when in full foliage, a considerable and solid little hedge. In order to hold up the flower stems without the bother of staking, I have stretched horizontally over the rows a length of chicken wire mounted on green stakes, about twelve inches above the ground. The plants grow right up through this wire, completely hiding it before blooming season, and it never shows again. In winter it serves to hold the covering on the beds, and in spring it absolutely prevents any mistake about the situation of the crowns. Personally, I agree with Mr. Johnson that the Platycodon, at any rate in a well drained soil, is extremely hardy. This same arrangement of chicken wire, by the way, at a slightly greater elevation, is an excellent support for Peonies.

Mass. WALTER PRICHARD EATON.

Zinc Labels

IN A recent issue of THE GARDEN MAGAZINE was an item concerning zinc labels. If the labels are immersed in acetic acid or for a longer time in real strong apple vinegar, the name can readily be erased and the label ready for use again. I use a wide-mouthed horse radish bottle for the acid and a strip of zinc cut like a dagger. The narrow end can be bent around a stem or attached to a wire stake and both sides of the label used.

Rogers, Ark. J. W. TETIRICK.

Manure—An Experiment With and Without

THE value of manure to soil has been argued from every conceivable angle. For all general purposes there is nothing to equal it; you must use it if you want results.

There are several reasons why manure excels as a plant fertilizer. It is the natural process of restoring to the soil the elements that plants take from it; it is very retentive of moisture, encourages root action, and prevents plants from suffering during dry spells; the fertilizing quality contained in manure is practically all soluble and therefore is readily absorbed by the plants; the fertilizing qualities are let off gradually and the growth resulting is steady and well ripened. To sum up, manure is conducive to a healthy, well balanced growth.

I had a very vivid illustration last spring of the part that manure plays with the growth of plants; it taught me a lesson I will never forget.

My garden was a plot approximately 30 by 60 feet. As I had a strip of good sod about 30 feet wide adjoining the garden on the north, I decided to incorporate it into my garden, making it about 60 feet square. I had already provided manure for the original piece, and had ordered a load for the new part which I was going to plow under. I had made arrangements with a laborer to plow the soil; when he arrived the load of manure had not. The first load had all been spread on the other piece. As the work had to be done then, I determined to take a chance without manure on the new part and so had the entire area plowed. This new section did have a very good sod and I figured by plowing it under good and deep that the plants would have sufficient nourishment. The man that plowed the garden made an excellent job of it; he got the sod down where it belonged.

After raking the garden I sowed the seed, in rows laid out crosswise of the garden, which turned out very fortunately, as I had two distinct dates of maturity between the new and old parts of the garden.

Of the beans, for instance, I made a picking on the part of the row that wasn't fertilized several days before the others were ready. Of course, there was no comparison between the quality of the various vegetables when gathered from both sides of the garden. Root crops, such as beets, carrots, etc., matured earlier on the fertilized side; while seed pod vegetables, such as peas, beans, corn, etc., matured considerably earlier on the part unfertilized, though the quality was very inferior. Swiss chard, for instance, I cut twice as often and of

Notice the difference in the height of this corn, caused by the presence of manure in the soil

a much better quality from the fertilized side; lettuce on the unfertilized side was a failure. It ran to seed before the other lettuce started to head up.

The "step," which we have come to call the dividing line in our garden, is very apparent —there is a difference of two feet in the height of the corn on the different sides, and it is just as perceptible in the other vegetables.

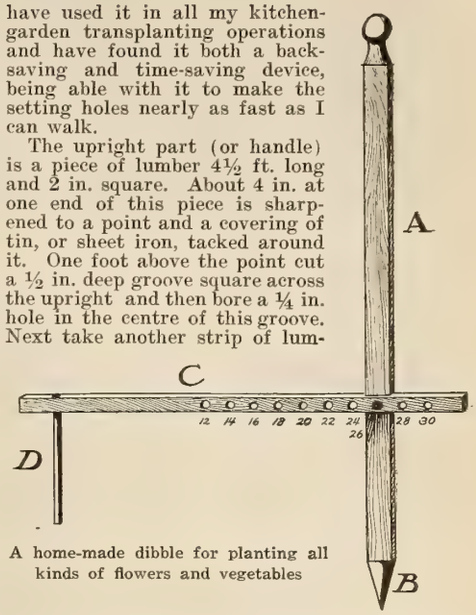
To make a comparison of the results from both sides of my garden, I would say that the side that was fertilized produced fully twice as much as the other, and that the produce was twice as good in quality, so the proportion of the two sides would be one to four, when as a matter of fact the new soil, with the same amount of manure, would have produced better than the old because of the addition of the sod.

Long Island. W. C. MCCOLLOM.

A Home-Made Transplanting Dibble

A FEW years ago, while on a visit in western Pennsylvania, I saw an amateur gardener marking out his cabbage patch with a home-made dibble, and its merits over the ordinary dibble were so evident, and its construction so simple, that on returning home I made one for my own use. Each year since then I have used it in all my kitchen-garden transplanting operations and have found it both a back-saving and time-saving device, being able with it to make the setting holes nearly as fast as I can walk.

The upright part (or handle) is a piece of lumber 4½ ft. long and 2 in. square. About 4 in. at one end of this piece is sharpened to a point and a covering of tin, or sheet iron, tacked around it. One foot above the point cut a ½ in. deep groove square across the upright and then bore a ¼ in. hole in the centre of this groove. Next take another strip of lumber, 3 ft. long and 1 in. square and, starting 3 in. from one end bore ten ¼ in. holes in it, each 2 in. apart. Next turn the strip *half* over and at 12 in. from the last hole bore another hole. In *this last* hole insert, and securely fasten, a 9 in. long bolt or spike. Next place this strip (the horizontal, C) into the groove in the upright (A), fastening them together with 3 in. long ¼ in. bolt, using a thumb nut and washer. Put this bolt through that hole in the horizontal whose distance from the spike is that number of inches at which the kind of plants to be set out are to be apart in the rows. After marking off the plot for the rows (i. e. one way), take the dibble and, pointing the horizontal ahead directly with the row-mark, push the pointed upright into the ground where the first plant in that row is to be set. Give a half twist to the handle before lifting up, thus causing the spike in the horizontal to make a mark *across* the row-mark at the point ahead where the next plant is to be set. Make the next dibble hole at this cross-mark, and so on to the end of the row. Repeat this on each row.



A home-made dibble for planting all kinds of flowers and vegetables

With this dibble I can mark out a plot for transplanting in less than half the time it takes with an ordinary hand dibble, and besides I am sure of having all plants just the same distance apart. I consider it one of the most helpful of my gardening tools.

Lestershire, N. Y. JARVIS RUNKEL.

How to Grow Japanese Anemones

CAN you or any of your readers tell me if they have had any trouble growing Japanese Anemones successfully, and if so their opinion as to the cause? Out of six strong plants set out a year ago in rich garden loam, in partial shade, two died outright, and of the other four only one produced flower buds which, however, never bloomed. On the place next door to my own, similar trouble has been experienced, under similar conditions, the plants dying out altogether or producing only one or two blooms. Should the plants be covered in winter? Should the soil be enriched especially, or not? I would be most grateful for suggestions on these points.

Dorrancetown, Pa. MRS. L. M. THOMPSON.

Sulphur for Asters

I HAVE recently noted, in THE GARDEN MAGAZINE, some notes about Aster troubles. I have had very good success with Asters both in new and old soil, and all I have ever done as a preventive of trouble is to mix some sulphur flour in around the roots when I transplant. I do not know enough about the chemistry of the soil to state whether this is worth while or not; but I do know that for several years I have had splendid Asters, both growing alone and in beds with other plants.

Heron Lake, Minn. FRANCES B. KIRBY.

GARDENING FOR YOUNG FOLKS

CONDUCTED BY ELLEN EDDY SHAW

WILL THE TREES FLOWER? LOOK AT THE BUDS!

BEGINNING usually in midsummer the ordinary deciduous tree starts one of its great pieces of work—bud formation. Then right along slowly and steadily the work continues until in February and March when sap begins to move, the buds swell and many people then notice them for the first time and say that buds form in the spring. Not so, their start is away back in the summer. We might almost say that trees are provident, beforehanded, and have a peculiar talent for preparedness.

The end of a twig is a growing point which forms the bud. The growing point is made up of delicate cells rich in protoplasm and in water. These same growing points, buds, also develop at the axils of leaves. So we have terminal or end buds, and axillary or lateral buds. As the fall advances and winter comes these buds, if unprotected, would lose such a quantity of water that they would die, so Nature provides protections or coverings for the winter, not primarily against frost and real cold but to prevent loss of water. These protections take the form of scales, or hairs, or waxy and resinous substances over the outer surface of the bud. At the same time such coverings are great protections against mechanical injury to these delicate growing tips.

Annual plants do not form these buds because the energy of the plant is expended in ripening the seed and so as winter comes on the annuals die unprepared for it. The perennials and biennial herbs die to the ground in winter but beneath is an underground shoot or root protected from cold and ready to spring up again when warm weather comes. Now the deciduous trees and shrubs shed those parts (leaves, flowers, fruits), which if they should remain alive and active all winter would require more water than the inactive roots could supply. So the shoots of such plants are protected by the matured wood, in thick and strong cell walls. Also year by year the bark too becomes thicker.

Buds may contain leaf parts or flower parts or both in one; so buds are named leaf buds, flower buds or mixed buds. In general those buds which on a given twig are larger, fuller, fatter than their fellows are either flower or mixed buds; while the more slender buds contain the leaves alone and are leaf buds. It is rather fun to make an estimate with a given twig on what the buds are to be and then cutting such a twig from the tree in February force its buds out indoors. This is a good work to do in an elementary or high school class when studying this subject.

On the Maple we find buds oppositely arranged. Flowers may be forced out indoors early in March. Many spring flowering shrubs may be used thus

The large size of terminal buds and the correspondingly smaller size of lateral buds as they appear on the same twig is due to this fact that the supply of nourishment going first to the terminal bud is used up by this bud according to its needs. So the last little bud on a twig comes out the small end of the horn. Pussy Willow twigs show this strikingly. And these poorly nourished little buds lie dormant sometimes for years waiting their chance to get a proper supply of food. And of course pinching off buds to throw all the nourishment to one bud is a sort of application of the plant's own natural behavior. Then, too, we pinch buds from young cuttings and plants when we wish the plant's energy to go to other work besides bud formation as in the case of root formation in young geranium cuttings. So all Nature's own natural actions may be studied and re-applied by man in his dealings with plant life.

Again, buds are placed either oppositely or alternately to each other on the stem or are arranged on a sort of spiral. And if a careful study of the methods of budding is made one can work out a scheme of classification for trees. For example, take a Horse Chestnut branch and an Elm twig. On the former the buds come out in pairs, one opposite the other; in the latter the buds appear alternately on opposite sides of the twig, first one, then another, and so on. To be sure, the Horse Chestnut has at the end of each branch a large, fat terminal bud but on each side of this are opposite buds.

The terminal bud maintains the growth of the main shoot of the tree in every case. Maples, Horse Chestnut including Buckeyes, Ashes, Dogwoods, with one exception, and Catalpas are the trees which have opposite buds.

The American Beech has buds arranged alternately, and they are conspicuously slender, sleek and bright

The Ash has opposite buds. The terminal bud full, strong and black; the stem is remarkably angular

Dogwood buds also opposite; large, round, flat. Flower bud very characteristic. Leaf buds slender

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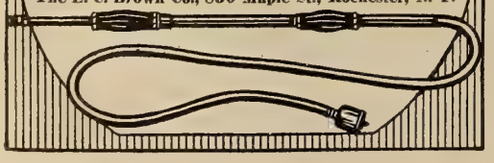

Keeping Cut Flowers Fresh

THE preparation of cut flowers for handling, no matter how you dispose of the product, is important. A cool cellar or a well house will be of the greatest service. Flowers should be cut early in the morning and kept in water in a cool place preferably for twelve to twenty-four hours, but for several hours at the least before being sold. Flowers cut from the garden and sold, or packed, directly will become wilted in an incredibly short time. Unless you are making a specialty of one or two things, probably most of your flowers will be used in mixed bouquets. For bouquet work you will find an adequate supply of "greens" and of "bouquet stuff" will be indispensable.

As to the things which you grow, that will depend entirely upon what you intend to do. For a roadside garden market, you should plan to have some flowers ready to sell as early as June and plan to have a continuous supply until frost. It is best to have a good variety with two or three showy things such as Gladioli, Dahlias and Asters planted where they will be conspicuous when in bloom. Use named varieties and plant each kind by itself.

An early start is essential. The bulk of your roadside sales will probably be between the Fourth of July and Labor Day. Remember that flowers ahead of their season, if good, will attract more attention and bring better prices than they would later; Asters, Dahlias, Sweet Peas and even Gladioli should be started indoors this month or early next to be ready for transplanting later on. Snapdragons should be started at once or potted plants may be bought and set out later. The new named sorts are very popular, and as the plants will last for a long time and are very productive, they are about as profitable as anything you can grow. Since Gladioli produce but one stalk each, succession plantings should be made about every two weeks. Make at least three plantings of Sweet Peas—the first under glass, the second as soon as the ground can be worked, and the third a month later.

In no pin-money proposition is irrigation more profitable than in growing flowers, especially where the beds will be seen. In summer when the roadsides for miles around will be wilted and dust covered, people will stop out of curiosity to see your garden.

What To Do With an Alkali Soil

IN COMBATTING alkali in a soil, proper drainage is of prime importance. Local conditions must of necessity determine the method of obtaining it. With good drainage established, an abundance of farmyard manure should be worked into the soil thoroughly and deeply. Establishing a good lawn on such a soil will be a matter of several years because it will require several dressings of barnyard manure to put such a soil into a fit condition for grass to find a permanent root hold. If the owner does not desire to raise potatoes, corn or other cultivated crop on the ground that is to be the lawn, he might the first year sow Poppy seed broadcast, which will provide a very brilliant effect and still leave him an opportunity to work the soil again that fall and in the spring. A lawn is easily feasible on such a soil, but trying to establish grass immediately after the first application of manure and spading is foredoomed to failure.

In raising flowers successfully the same general treatment of the soil is necessary, for barnyard manure will not only combat the alkali but soften up and mellow, so to speak, the hardest soil in a surprising manner. Here, also, the same principle of working the soil for several years applies, to facilitate which the gardener should confine himself to annuals until he is pretty certain that his soil is so friable that shallow cultivation is all that will be required for a number of years thereafter.

To insure an abundance of bloom the annuals should be started in boxes within doors or in a coldframe, and then transplanted to the permanent location after the danger of killing frost is over. A few annuals are as well sown direct as far as their bloom is concerned. These are Cosmos, Nicotiana, Bachelor Buttons, Nasturtiums, Poppies, and a few others.

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JOE COLEMAN, *Grower*
Lexington, Ohio

Lime-Sulphur; Concentrated or Self-Boiled?

IT IS necessary to distinguish sharply between self-boiled lime-sulphur and what is known as concentrated lime-sulphur, which may be either home made or commercially made and bought.

Self-boiled lime-sulphur seems to be chemically different from concentrated lime-sulphur. In making the former you watch the lime boiling and, by adding water, keep the temperature down to a non-burning point. When the lime is nearly all slaked, or in not longer than fifteen minutes, add cold water till all boiling is stopped and the heat is reduced to 90 or 100 degrees. The so-called non-burning point is the point where the sulphur combines with the lime chemically and makes sulphides, which will burn foliage in spite of all dilution. And this chemical action will take place if the boiling, or slaking, is continued too long, just as it will when the temperature goes too high—hence the necessity of stopping the action with cold water within the prescribed time. To sum up, self-boiled lime-sulphur apparently is just a mixture of lime and sulphur in which each maintains its identity, though finely pulverized.

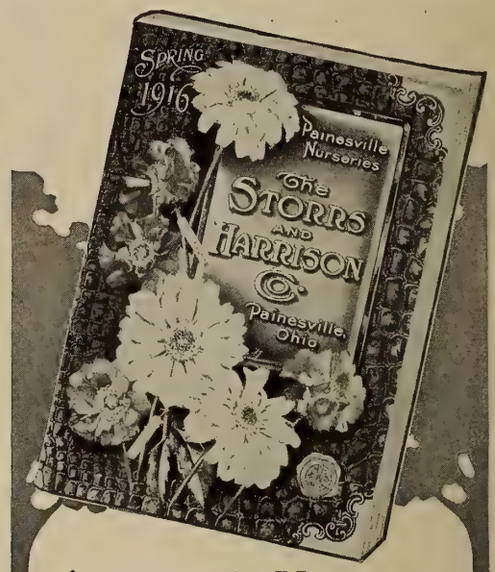
Concentrated lime-sulphur, on the other hand, is frankly a chemical combination of lime and sulphur, in which the action of artificial heat for at last forty minutes and often double this time brings about changes in both the lime and the sulphur until neither of them retains its identity. Further explanation of this process is not needed here, other than to say that the concentrated solution is much more caustic and apparently burns in a different way than self-boiled solution.

Now, the remedy for San Jose scale is the concentrated lime-sulphur solution. Self-boiled solutions will not kill scale, or at least I never have heard of scale being killed by them, no matter at what strength applied. The summer strength of self-boiled lime-sulphur has been given variously at from 4-4-50, to 10-10-50, and at all these strengths it seems to be entirely free from burning. At any strength above 6-6-50 it also seems to be effective as a fungicide. How much stronger than 10-10-50 you could make it and still not burn tender foliage, as of peach, I do not know, but I am inclined to think that it would not burn even if applied as a saturated solution. Lime itself will not burn; neither will sulphur.

Concentrated lime-sulphur also can be used as a fungicide and applied safely to foliage provided it is diluted greatly. Thus, for apple and other such foliage not easily burned, it can be used as strong as one to thirty, while for peach it must be not stronger than one to fifty. At these strengths it is pretty effective, though I believe the records show that a somewhat cleaner sweep of the enemies is made with self-boiled solution. For killing scale, the concentrated solution must be used at a strength not less than one to ten, while more often one to seven is used. Of course this is applied when there is no foliage and buds have not started to open. The caustic properties of the strong solution do not seem to affect the bark at all.

A further fact that must be taken into account is that arsenate of lead has a neutralizing effect on the caustic properties of the concentrated solution. You will find that very few makers of the commercial lime-sulphur will guarantee that their product will not burn peach leaves even at one to fifty, or will not burn apple leaves even at one to thirty, unless you add the usual amount of arsenate of lead to the solution. Two pounds to fifty gallons for peaches, and two and a half pounds for apples, are the proper maximum amounts to use of arsenate of lead paste. These quantities will prove effective without burning of foliage.

Penna. J. R. MATTERN.



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It is acknowledged to be **The Best Scarlet Green-leaved Canna** in existence.
The Superintendents of America's most beautiful Parks and Public Gardens are planting it this year. You should have it in your garden.
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Planted with the bronze-leaved **King Humbert,** the two give a brilliant effect. One of each for **50c; 3** each for **$1.40; 6** each for **$2.40 prepaid.**

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Dry Sprays in the Home Garden

IT ISN'T surprising that the gardener is confused when he reads the usual directions for the use of insecticides and fungicides in his little garden patch. By the time he has supplied himself with hellebore and arsenate of lead and whale oil soap and kerosene emulsion, to say nothing of bordeaux mixture, flour of sulphur and some preparation of nicotine he begins to feel that garden making is more of a burden than a joy. I have found that it is easier to use dry sprays and the results are just as satisfactory.

Dry sprays are now being used more or less extensively in large orchards and on fields of vegetables that cover acres. Whether they give equal satisfaction with liquid sprays when employed in that way I leave it for some one else to decide, but in the home garden they are a decided success. There are several commercial dust insecticides, one of the best being simply a preparation of arsenate of lead. Also, there are dust fungicides made of sulphur. Many garden makers rely to a very great extent on tobacco dust.

The easiest way to apply the dry spray is by means of a simple "gun" designed for the purpose and costing about one dollar and fifty cents. There is a large gun, operated by turning a wheel, which will throw a spray into the trees and which saves time when considerable work is to be done. On the other hand, a one or two-pound baking powder or coffee can with holes punched in the bottom may be used

Dry sprays are easy to apply and are a decided success in the home garden

as a duster and will be sufficient when only a few plants are to be treated. It should not be too full to allow shaking of the powder and the cover must be fitted on tightly. There are also patent sifters or dusters, but the coffee can serves very well indeed.

An arsenate spray will kill every sort of leaf-eating pest which enters the garden. It may be applied at any time, but of course sticks a little better when the leaves are wet with dew. It will give protection from the striped beetle, the currant worm, the tomato worm, the potato bug, the corn ear worm, the coddling moth in apples, the curculio in plums and cherries, and various other insects which feed in the same way.

It is especially important to get the poison on early. The flea beetle, for example, is often at work on squash plants before the grower

Ferns and Flowers for Dark, Shady Places

WHY not start this spring and make a collection of American ferns and plants? If you have a woodland, even a very small one, you can develop a natural garden which will be the envy of all your friends.

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Situated in a Natural Nursery Region, trees and plants grown here bear immense crops of fine fruit in all parts of the country, North as well as South

even knows that the plants are up. This ubiquitous insect seems to just sit around waiting for the first little plant to poke its head through the ground. He is rather easily gotten rid of, happily, but the striped beetle, which eats very rapidly on young and tender vines, may need several doses of the poison before he gives up. The currant worm is another pest that frequently does much damage before being discovered. He begins working at the base of the plants, where he is hidden by the foliage and may escape notice until he has eaten his way into sight, unless the garden maker is vigilant. And one advantage of the tin hand duster is the fact that the poison can be applied to any part of the plant, the centre of growth and the under part of the leaves as well as the outside and the top.

The cabbage worm and the cabbage looper are particularly aggravating pests and not easily combatted. One or two applications of a poison spray may be used, but after the plants begin to head it is better to use tobacco dust. Some vegetable growers like to make up a mixture of

A home-made "duster" made from an old coffee can that has had holes punched in the bottom

plaster, tobacco dust and paris green, a teaspoonful of the poison to two quarts each of plaster and tobacco dust. This is an excellent dust spray for young cabbages, squashes and cucumbers, being applied when the leaves are wet. Cabbage maggots, which work on the root, sometimes three or four in company, are best subdued by tobacco dust sifted on the ground around the plants when they are set out and once a week for three weeks thereafter. Tobacco dust is also very useful in protecting peas, carrots and lettuce from the green fly, being sprayed or sifted on the plants.

In point of fact, this simple remedy has a much wider range than most people realize and professional gardeners rely on it to a large extent. It may be used with considerable success in getting rid of plant lice, which are not affected at all by the poison sprays. It may be scattered on the ground around Aster plants to protect them from the beetle. It will drive ants from the Peony plants, and more than that, it will drive them from the lawn, thus providing the easiest way known to keep the grass plots free from ant holes. It is effective in fighting the red spider in the open garden, and it will even secure immunity from rose bugs if used when the bugs are small and soft.

Cut worms, which abound in many gardens and against the underhand work of which most amateurs feel helpless, are easily disposed of by means of a poisoned bait made of the same preparation as is used for dusting the plants, which is mixed with bran and molasses and made into little balls. It must be remembered, though, that these poison balls would not agree with the poultry. No kind of poison or other application will give protection from the ill-smelling squash bug. The best remedy is hand picking, although many bugs may be trapped

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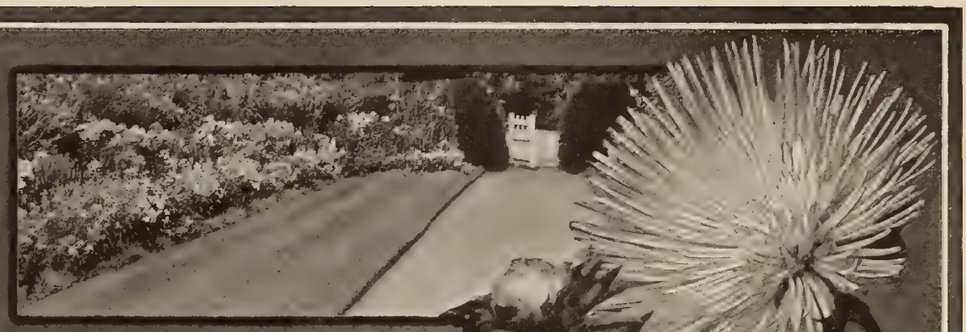

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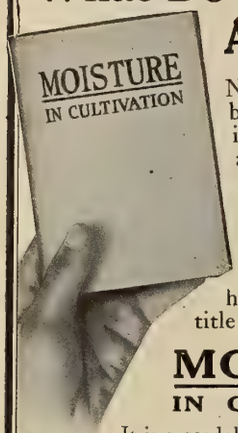

Not what it is made of—but its function in making things grow. If you are interested in the general subject of the cultivation of flowers, or plants, or vegetables you will want to read this booklet we have prepared under the title of

MOISTURE
IN CULTIVATION

It is a readable, likable, little booklet and should be in every garden library. If you are wondering why we want you to have it, let us say that we have simply emphasized the importance of an artificial supply and we expect you may be interested in our lawn and garden sprinklers but even if you are not, you will like the booklet. Write for it now and we will send it at once.

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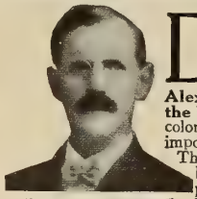
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All Flower Lovers are invited to send to the "Dahlia King" for his latest **Free Illustrated Catalogue,** which contains helpful descriptions and valuable cultural hints on **Dahlias, Gladiolus, Roses, Cannas, Peonies, Phlox, Iris, Hardy Plants** for the Old-fashioned Garden, and a general line of **Ornamental and Flowering Shrubs.**

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Ralph E. Huntington Painesville, Ohio

under shingles placed near the vines, shelter being sought there at night. It is not necessary to plant winter squashes until the middle of June and after that date but little damage will be done by squash bugs.

Prepared sulphur will control or prevent some of the most common of the fungus troubles which the amateur has to contend with. It is used for blight on potatoes, mildew on raspberries and for scab and rot on fruit trees. It is always easier to prevent than to cure these diseases and for that reason it is wise to make early applications. The powder is easily and quickly put on with a dusting machine.

As may be judged, the use of these powders or dry sprays wonderfully simplifies the garden maker's work. There is little or no mixing to be done, no spraying apparatus to clean, and no weight to be considered. Tobacco dust, a dry spray for leaf-eating pests, and a powder for plant diseases comprises all the material needed. It is ready for instant use at any time, requires but little space for storing and is inexpensive to begin with.

Mass. E. I. F.

Preparing the Soil

THE bi-monthly planting of the smooth variety of garden peas can continue throughout March and after this the wrinkled, or more tender kinds should be sown. The middle of the month sow radishes and early beets.

March weather is uncertain and the ground still cold, so it is not advisable to plant vegetables, although during the latter part of the month Irish potatoes can be planted in the tidewater sections. In the mountain sections the prevalence of clay in the soil keeps it cold and April is quite early enough for planting potatoes. One's attention had best be given to getting the ground in good shape rather than to too early planting. Plow the ground deeply, as was done in the fall, as soon as the ground can be worked. The spring frosts will be beneficial if the ridges are allowed to remain, and it will be thoroughly mellowed and aërated. Then when the first warm days come the sun will have a better chance of drying out the soil. The first part of the month could be better occupied by spreading as much manure as possible.

On tight, sandy soils a quantity of well rotted cow manure would supply the necessary humus to loosen the soil; the clay soils if as heretofore advised had the deep fall plowings should now have a heavy coating of lime before any fertilizer is put in. The early rains will wash this in and the action of the lime makes available any potash which is in the soil. Clay soils contain a large amount of potash and it only needs the lime to release it. This is more than ever important because there is little if any potash on the market. Indeed all fertilizers are scarce and expensive. This difficulty can be overcome to a great extent in supplying green manures by sowing cow peas, soy beans and crimson clover and such other legumes in every available place. Do not let the land remain idle.

Plow between the rows of asparagus, turning under the manure which should have been spread on the bed in the fall. Asparagus is a gross feeder and an addition of commercial fertilizers would be beneficial. After thorough working, mound up the beds in long rows and rake over smoothly, provided white stalks are desired, but work the bed flat if the green shoots are preferred. Broadcast a thick coating of coarse salt; it gives good quality to the asparagus and keeps down the weeds as well. Work between the rows of fall planted onions and weed out the spring kale.

Transplant the seedlings sown in February, such as tomatoes, peppers and eggplant, from

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Bulbs, Plants, Fruits

Our list of German and other iris alone would furnish material for a hardy garden. We have wild flowers, hardy ferns, lilies, peonies, woodlilies, foxgloves, wild orchids, shrubs, trees and vines.

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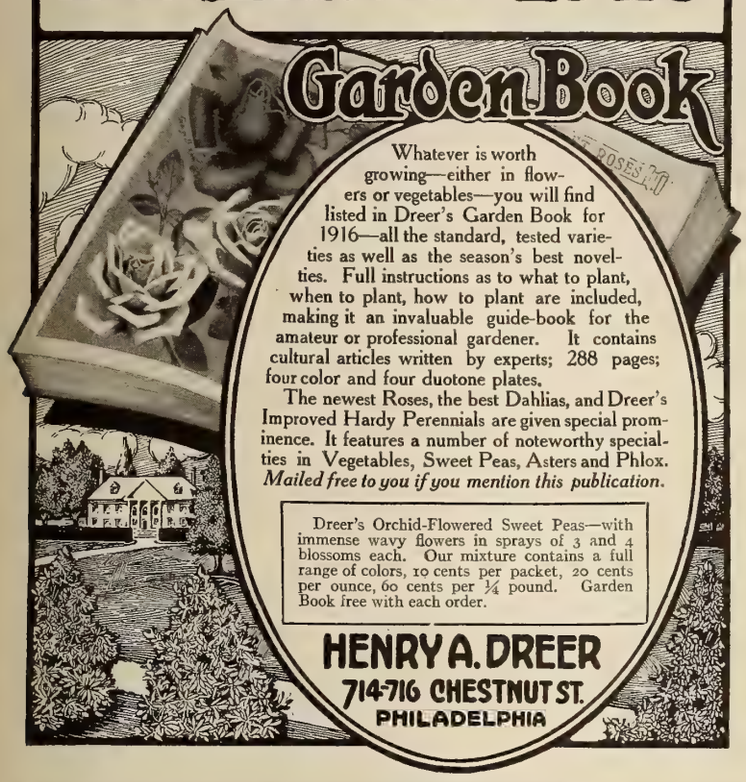
DREER'S 1916



Whatever is worth growing—either in flowers or vegetables—you will find listed in Dreer's Garden Book for 1916—all the standard, tested varieties as well as the season's best novelties. Full instructions as to what to plant, when to plant, how to plant are included, making it an invaluable guide-book for the amateur or professional gardener. It contains cultural articles written by experts; 288 pages; four color and four duotone plates.

The newest Roses, the best Dahlias, and Dreer's Improved Hardy Perennials are given special prominence. It features a number of noteworthy specialties in Vegetables, Sweet Peas, Asters and Phlox. *Mailed free to you if you mention this publication.*

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will soon begin to dry out the soil and help prepare your gardens and lawns for seeding and planting.

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equipped with the matchless Rain Cloud nozzles are designed expressly to provide scientific, thorough and economical irrigation where and when it is wanted. They do away with the old-fashioned, troublesome and ineffective methods and produce the maximum results in appearance of lawns and flowers and the quality of garden products.

The illustration at the left shows the Underground System in operation on a country estate lawn. The piping and nozzles are entirely hidden. The patent Rain Cloud nozzle absolutely prevents all clogging, and any type of mower may be used without interference with this system or the proper mowing of the lawn.

The Overhead System is shown at work in the illustration of the vegetable garden at the right. There is no unsightly overhead piping with small holes to become clogged. Rain Cloud nozzles supply a gentle rain at the turn of a valve, giving just as much water as is needed and no more, at the time and spot desired.

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Price, Strong Plants, $5.00 Each

My 1916 catalogue with instructions for growing dahlias free

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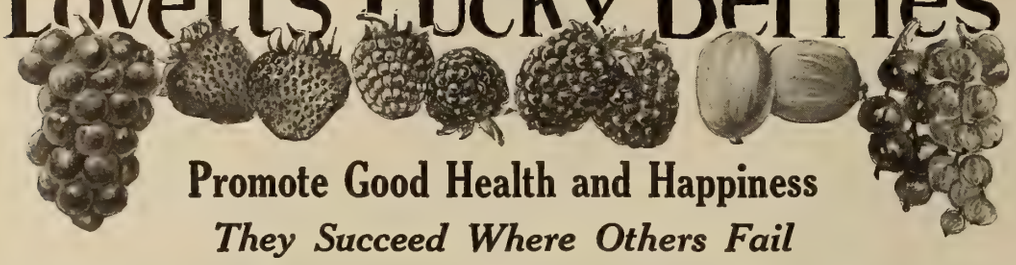

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Nurserymen—Florists—Landscape Gardeners

the hotbeds to the coldframes, provided they have two or more leaves. Water in the mornings, shade them in the day and cover the coldframes at night. This will make stocky plants and they will be gradually hardened off and can be planted out in the open ground in late April in the tidewater sections, but not until the middle of May in the mountain sections. Tomatoes transplanted into little paper pots or old tomato cans with the bottoms knocked out and placed on a short plank in the coldframes simplify the final transplanting into the open ground, for when the hole is prepared the plant can be slipped into it very easily without disturbing the roots. This method makes for much earlier fruit.

This is the last chance to spray for San José scale in the orchard, for the next spraying will be for the coddling moth on apples and curculio on peaches and plums after the blossoms come, which is done with summer strength of bordeaux mixture and arsenate of lead.

Plant peach and plum trees and other stone fruits. In planting trim the tree carefully as well as the roots. Put the top soil in the hole first, mixing in a few handfuls of bone meal and then pack in carefully around the roots, but do not put in other fertilizers. The poor soil can be packed in on top.

This is the ideal month for planting evergreens. (See February, 1916, GARDEN MAGAZINE.)

Separate perennials and fork in manure in the borders, being careful not to disturb the bulbs. The winter mulch of manure should be carefully raked off of the beds.

The Rose garden needs much attention now. The bushes should have all old wood pruned out, the long canes cut down one half. Remember that severe pruning gives finer Roses. Fork in the manure and add soot or hardwood ashes if possible; both are good fertilizers and also destroy worms and bugs. Spray before the buds get too large with summer strength of bordeaux mixture with arsenate of lead. Those Roses subject to mildew should have a sprinkling of flower of sulphur in the early morning when the dew is on them. Climbing Roses require little trimming; cut out the dead wood only and train them carefully to their supports, tying the branches with soft twine.

Dig up the wild onions, dock and other weeds on the lawn. Rake over the bare spots, sow grass seed and roll carefully. A little nitrate of soda sprinkled over just before a rain is most beneficial.

Virginia. J. M. PATTERSON.

Why the Clematis Dies Suddenly

NEARLY everybody who has grown the Clematis, particularly the large flowered forms, has had the experience of suddenly losing their plants. This is especially true of newly purchased plants. The cause was not known until Prof. W. O. Gloyer, of Geneva, N. Y., published the results of several years' experimental work.

It is the stem rot. This is the work of a fungus which rots the stems or spots the leaves and on some varieties does both. The leaf spot first appears as a mere spot or as a water-soaked spot. When the water-soaked spot dries out it becomes tan colored with a red margin. When the stem is attacked the disease girdles it, cutting off further food supplies.

When you purchase Clematis plants set them in good soil that is well drained and in a sunny situation. When growth starts cut off the old top down to shoots starting near the ground, and be sure there is nothing but sound, healthy wood remaining. Do not allow any stubs to remain, and see that where the cut is made there is no brown or decayed wood. As the vine grows train it over a trellis in such a way that there will be good ventilation and that sunshine reaches all parts of the plant at some time during the day. Should diseased leaves be discovered remove them at once so that the disease will not have a chance to affect the stem. It travels slowly. Where vines are matted together Bordeaux (4-4-50 formula) helps to hold it in check, but it is not as effective as good ventilation and sunshine.

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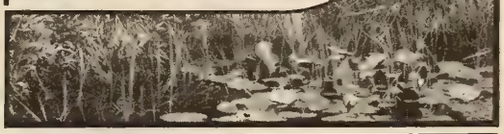

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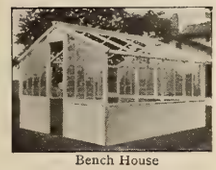

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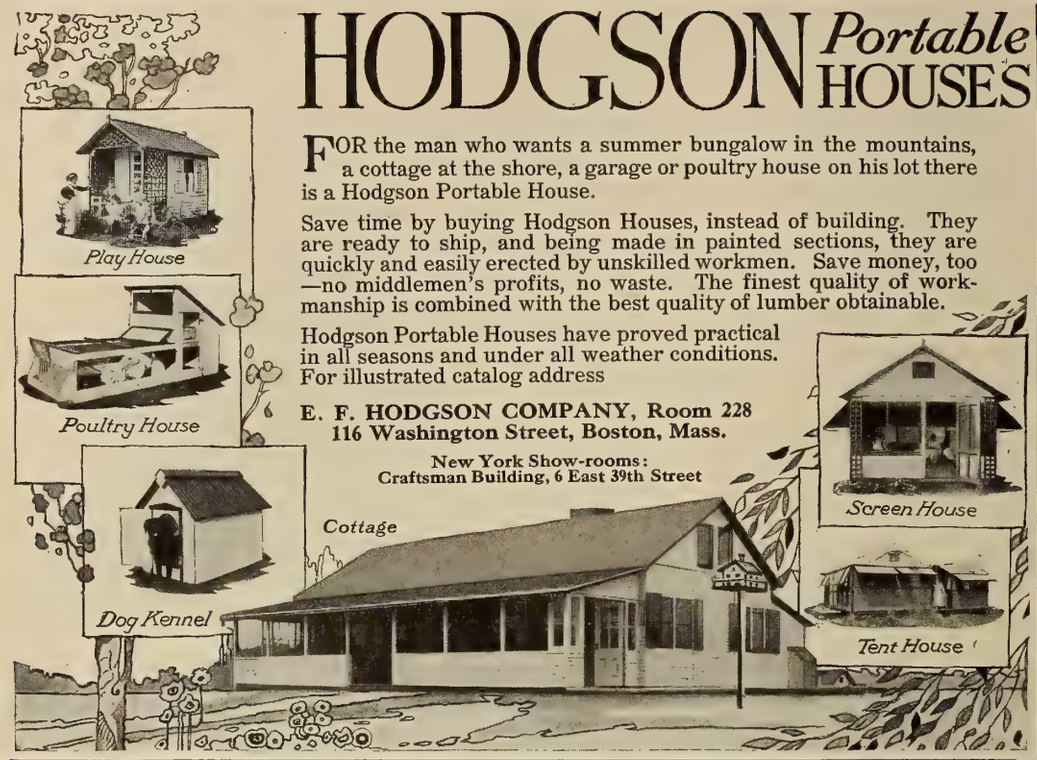

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are most beautiful and appropriate for the shingles, siding or timbers. The colors are clear and transparent and bring out the beauty of the grain of the wood instead of covering it as paint does. They cost only half as much as paint, can be put on twice as fast, the colors are lasting, and the Creosote "is the best wood preservative known."

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Some Spencers Supreme

COUNTESS SPENCER, the original giant-flowered pink, is possibly the best known Sweet Pea in the entire list. Since its advent in 1904, its popularity has steadily increased until it is the standard deep rose pink in nearly every part of the floral world.

The greatest blush pink is undoubtedly Elfrida Pierson, a huge flower that frequently comes double. This variety is listed by many seedsmen as one of the best six Spencers.

Margaret Atlee, an immense rosy salmon on a cream ground, is one of the greatest novelties of recent introduction.

Thomas Stevenson, a bright orange scarlet that is almost universally admired, seems to act better under the hot sun than most others. The blossoms seldom scald even though it is too dry for other varieties to bloom.

In the salmons, Stirling Stent is invariably a favorite. It is influenced by the weather less than any other variety of its class. A new

For large and brilliant blooms, be sure to grow the Spencer varieties of Sweet Peas

salmon cerise that has attracted much attention at flower shows during the past season is Illuminator. This is easily one of the brightest Sweet Peas.

At present the best crimson is King Edward.

Vermillion Brilliant, a scarlet Spencer of a beautiful form, remains the best in its color. On account of its intense brightness, this is a very telling variety for use in a bouquet. A new scarlet, Fiery Cross, will be offered in 1916, and it is predicted that it will become a great favorite. Othello, an attractive maroon, is distinctly the best dark Sweet Pea.

Asta Ohn, a very charming lavender, produces beautifully waved flowers of good size.

The new blue, Wedgwood, seems to be displacing the old variety, Flora Norton. Bertrand Deal, the pretty rose lilac, is unexcelled for cutting.

The best purple is as its name, Royal Purple, signifies, a rich royal purple. Afterglow is the daintiest of the new fancies. It is really difficult to describe—the standards are bright blue, shading to a rosy amethyst; wings, electric blue. This Sweet Pea when cut makes a most glorious bunch of color and fragrance.

The last word in whites, according to experts, is King White, the pure and glistening white that the enthusiasts have been wild over during the past summer. It is truly a perfect Sweet Pea in every detail, and must eventually find a place in every collection.

Sherman, Miss. BUFORD REID.

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They are as productive as they are beautiful, for every King retains all the practical features which have made good in our years of building for professional growers.

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Why shouldn't YOU enjoy the benefit of a greenhouse? The cost is no longer prohibitive. The Callahan Duo-Glazed Sectional Greenhouses offer to the garden lover unsurpassed facilities for gratifying his or her taste at a minimum initial cost.

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The most complete nursery stock in America—ornamental and fruit bearing. Every specimen well rooted, vigorous, true to name, perfect condition. *Save agent's profit—buy direct from us.* A 76-year success must mean superiority and integrity.

This Planting Guide Free

Not only a catalog but a useful handbook, with valuable cultural directions, indispensable to planters. Sent postal today.

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Starting Seeds Indoors

I WAS exceedingly interested in the article, "Hurry Ups for the Gardener Without a Greenhouse," in the January GARDEN MAGAZINE, and I wondered if the plan which I have used for several years for starting my plants, would not be a good addition to that story, and be of some interest to other amateurs.

You know that the amateur who wants *early* plants is advised to start the seed in boxes in the windows. This is a very mussy undertaking at best. There are usually too few south windows so that the boxes must be carried from one window to another in order that the little plants may have enough sunshine. If they are left a little too long in one position they get twisted out of shape, and as the atmosphere of the house is too dry they are usually quite unsatisfactory. The moving and watering of the plants always makes more or less litter in the house, and it was to avoid these troubles that I first tried out the following plan.

The only requirements are a south cellar window and a furnace in the cellar. Build a frame of boards, just as you would for a hotframe, but leave off the back. Line the frame with heavy cardboard (cardboard boxes such as cereals come packed in, which can be obtained from any grocer) to keep it as warm as possible. Put the frame around a south cellar window, snug and tight against the foundation, cover it with a storm sash, bank the frame on the outside with dirt, and fill all the cracks between the frame and the foundation wall with putty to make it as tight as possible. Put some old boards in the bottom of the frame to keep the seed boxes off the cold ground, take out the cellar window, and the conservatory is ready to receive your plants. Plant the seeds in small boxes, about 6 by 15 inches, as they are more easily handled, and will fit better in the frame. Have a long spout put on the sprinkling pot so that you can reach all the boxes without taking them out of the frame, for all watering must be done through the cellar window.

You will find that the cellar warmth will be sufficient to keep the plants warm at night, and during the middle of the day, when the sun is hot, the window being open will provide plenty of ventilation, so you will have to give your little plants very little attention aside from water. After you have filled the seed boxes, cover them with a piece of glass and put them on top of the hot water pipes by the furnace. Germination will often occur in 36 to 40 hours. Do not leave them there too long, but take the boxes to the window just as soon as the seedlings show above the soil.

In this small space you can care for upward of 1,000 plants, which is certainly a very real help when, later in the spring, every sort of garden work seems to pile up all at once, and the amateur hardly knows where to begin, or what to do. I plant my seeds about the middle of March, and with the help of this little frame have been able to have as good plants, and as early plants, as any of our florists, and many more of them than I would have had, had I been obliged to buy them from a plantsman. They come out of the frame at "planting out" time as strong and sturdy as one could wish, every plant perfectly straight and perfectly able to withstand the shock of transplanting.

Webster City, Iowa. WILL A. CRANDALL.

Roses Need Lime

ROSES cannot be successfully grown in a sour soil. Commercial rose-growers have long recognized this fact, it being the practice of many to sprinkle the bed in which the roses are growing with air-slacked lime when the plants begin to have a sickly appearance.

The New Jersey Agricultural Experiment Station reports an experiment carried on to prove the necessity of lime for Roses. A bench was divided up into compartments containing fifteen square feet. The soil in all was alike and received the same amount of fertilizer—a chemical fertilizer made up of acid phosphate, sulphate of potash and concentrated tankage. An equal number of plants were given no lime, lime at the rate of 270 grams per plot, and lime at the rate of 810 grams per plot. The plants

DOUGLAS SPRUCE

3 ft. to 20 ft.

The universal favorite because of its rapid growth, the unusual symmetry of its horizontal branches and the rich beauty of the luxuriant foliage, holding its decorative coloring from one year's end to another. It is always strikingly handsome and harmonizes splendidly with other plantings. Surely, "The Tree for the Million." The owner of one of Westchester County's finest estates says, "The Douglas Spruce is one of the two varieties of conifers I like best."

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The DINGEE & CONARD CO., Box 337, West Grove, Pa.

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THE GARDEN MAGAZINE

APRIL 1916

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If you own or only rent

If you love growing plants and beautiful flowers or fresh fruits and vegetables

A subscription to THE GARDEN MAGAZINE is a good investment. Its message is always timely. It tells you what to do, and how, just when you need help most. And besides, the magazine is interesting and entertaining.

In April, Spring Planting Annual

A Shakespeare Garden

Plan prepared by Mr. Jens Jensen, the well known landscape architect, in coöperation with the Committee for the Shakespeare Tercentenary Celebration and officially endorsed.

Flowers for an Autumn Garden

A chart which will enable you to keep the garden bright even after the first frosts. By Norman Taylor.

Practical Side of Planting

How to figure quantities, costs, etc., by Stephen F. Hamblin.

"Lilac-dom"

Mr. E. H. Wilson's article for this month is devoted to these extremely popular and delightful flowering shrubs.

Planting the House Foundation

Photographs and plan of actual plantings by Ruth Dean.

Which Peas and Why

Anyone who has seen the preceding articles on lettuces and radishes will be full of keen anticipation for this lucid explanation of what varieties to grow, by Adolph Kruhm.

Better Things for the Herbaceous Garden

By Frank M. Thomas. An appraisal of some of the recent novelties for the hardy garden which ought to be better known.

What Can Be Done on Heavy Clay

Is the second article in the series of Easy Gardening in Difficult Places.

Celery as a Pin Money Crop

Mr. Rockwell here shows what opportunities exist for turning a small garden space to a profitable purpose. This is not a get-rich-quick scheme but an honest explanation of facts.

Rock Garden Effects.

By H. S. Adams. Calling attention to some charming possibilities in this newest phase of garden craft.

Roses

Of course there will be something about these most delightful favorites of everybody — something that will be right to the point, and timely.

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G.M. 3-16

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Garden City, New York

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When you can do it without getting tired. You can keep your rows free from weeds. You can keep the soil thoroughly pulverized. You can get more healthful pleasure out of your garden with the

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You can adjust it instantly to fully cultivate rows of any width from 7 to 18 inches. You can straddle small plants and work two rows at once. It is light, sturdy and well balanced.

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Illustrated information on request

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The BARKER Weeder, Mulcher and Cultivator

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The Readers' Service gives information about poultry

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For only 10c we will mail a large packet of seed producing all colors of this glorious flower, and 5 other packets of seeds of flowers for cutting. We want you to *know* that WILSON'S SEEDS are seeds of *QUALITY PLUS!*

Send the 10c to-day — now. Also get your copy of WILSON'S SEED ANNUAL

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The Readers' Service gives information regarding Live Stock

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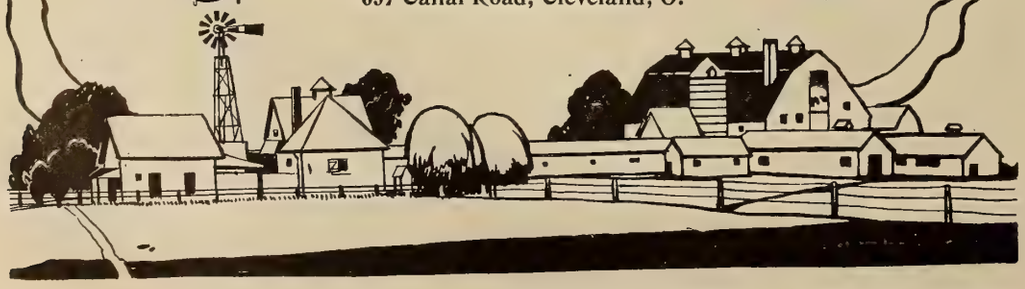


grew on these benches for two years. Two varieties, My Maryland and Killarney, were used in the experiments.

When the experiment started the soil was tested with litmus paper which showed it to be neutral. The results of this experiment showed that different varieties of Roses differ in their ability to withstand sour soil for, at the end of two years, the plants of Killarney in unlimed soil were dead or about dead while the My Maryland plants in the unlimed soil were still alive, but were not making growth.

The effect of a sour soil on the Roses was to "harden off," they failed to make a free growth, the growth being small and weak, and the older leaves on the plants turned yellow and dropped off. As the soil became more sour the plants failed to make a good root growth and the smaller roots died.

It was also noticed that after the plants had been growing for some time in the unlimed plats that they failed to produce as many buds as in limed soil.

Of the two amounts of lime mentioned the heavier application, 810 grams to the fifteen square feet, gave the best results in the long run. But My Maryland in unlimed soil did nearly as well the first season as in the limed plats.

Penna. Harold Clarke.

Are You Ready?

GOOD tools mean both quicker and better work. See to it that everything of this sort is in readiness now, so that there will be no delays in hunting around, borrowing, and in breakdowns later after you start. Tools, unlike seeds, you can generally purchase to the best advantage at your local stores, where you can pick out not only the type but the individual tool that just suits your hand and has the proper "hang." Have you the following in proper order?

For handling the soil: Hand plow, spade, spading fork, flat tined hook (for breaking up lumps where no harrow is available).

For planting: Iron rake, garden line and reel, "Warren" or drill hoe, markers, seed drill, trowels, transplanting fork, dibble, small rain-proof box for carrying seed, wheelbarrow, substantial labels or tags, and a planting table and record mounted on cardboard on which to keep track of things.

For cultivating: Standard hoe, light hoe, onion or weeding hoe, wheel hoe (by all means, if the garden is bigger than the dining room), long handled prong weeder, and hand weeders, preferably of both the solid blade and the finger type. The long handled prong weeder is particularly useful in flower beds.

For protection: Sprayer, duster, stock preparations of the essential fungicides and insecticides, such as bordeaux mixture, kerosene emulsion, nicotine solution, tobacco dust, arsenate of lead, etc.; also mechanical protectors.

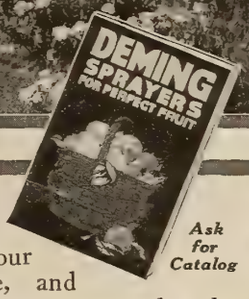
For forcing plants ahead before season: Small garden frame, paper pots, glass protectors, individual "forcers," nitrate of soda for the top dressing.

For general efficiency have you provided what you will need in the way of plant stakes, brush, wire netting for supports, baskets, labels, raffia or soft twine for tying up, a good pair of pruning shears, and last but, in a dry season, at least, more important than everything else, irrigation?

Hardly a thing is mentioned in the above lists which you will not need some time during this season. Every time you have to look for, borrow or buy after the garden work once begins is just so much time lost.

With the first warm spell the race begins. *Are you ready?*

New York. F. F. K.



lies largely in the protection which you give your flowers, foliage, and shrubs from bugs, worms and scale.

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DEMING SPRAY PUMPS

are especially adapted to the home garden, large or small. The "Handy Success" Sprayer shown above is just one of a dozen types for this use. Our catalog, free on request, describes them all.

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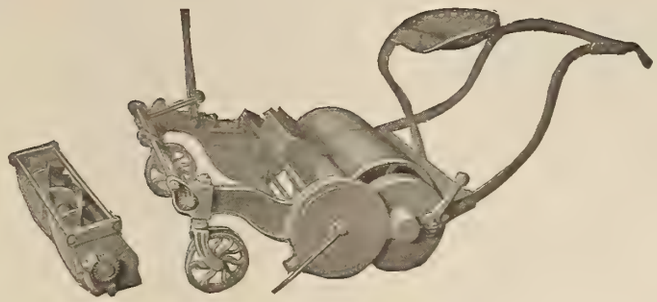

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The cutter unit—revolving cutter and stationary knife—is demountable—a Coldwell patent. When blades need sharpening, or anything goes wrong, you just lift out the one cutter unit and slip in another in a minute.

Coldwell Walk Type Motor Mowers, in sizes 30", 35", and 40" cut. Climb 25% grades easily. Mow from ½ to an acre an hour. Rolling weights 500 to 1100 pounds.

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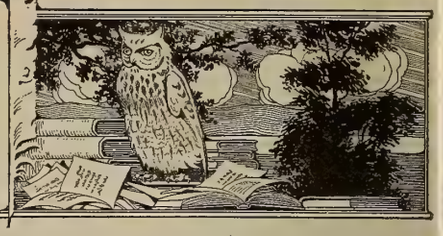

This department will help in dealing with general conditions. It cannot render personal professional service

English Gooseberries

I want to grow English gooseberries. In what way may success be ensured?—A. H. S., Long Island.

—MAKE the land rich with an abundance of potash and phosphoric acid, and nitrogen enough to make a fair growth of wood. Shallow, level cultivation will give the best results. The land must be kept rich with a heavy dressing of stable manure or fertilizer each year, using enough to produce strong new canes each season. The distance between plants is most generally 4 by 6 feet, and they may be planted either in the fall or spring as is most convenient. Some growers set the plants nearer than four feet in the row, and prune the bushes to three or four strong canes. The pruning consists in removing the old wood after it is three or four years old and allowing only a limited number of new canes to grow. These canes should be strong and upright.

Duty on Imported Rose Bushes

What is the duty on Rose bushes imported from France? I note that prices there are much cheaper than here.—J. S., New Jersey.

—THE duty on Rose bushes is about four cents per plant. It should be remembered, however, that this does not represent the entire cost. The plants have to be cleared through a broker and you will have to pay the broker's fees, the custom house entry charges, and several other incidentals, such as cartage, etc., which brings up the cost considerably on small quantities of plants. It will be much more satisfactory for you to give your order to some large importing firm of florists or nurserymen and get them to import the goods for you in conjunction with their own plants.

What is Paradise Stock?

What is Paradise stock on which dwarf apple trees are grafted?—M. L., New Jersey.

—PARADISE and Doucin are names given to naturally dwarf forms of the common apple which grow in France and which are used by nurserymen as stock upon which to graft other varieties of apples to produce dwarf trees. Paradise gives the smallest tree and the Doucin a slightly larger, from whence it is occasionally known as half dwarf. The names are purely horticultural and have no botanical significance.

Commercial Production of Aster Seeds

I have been quite successful in the field cultivation of Asters, but do not find a sufficient market for them as cut flowers. Could I profitably raise seed for market?—E. F., New York.

—UNLESS you have some very special facilities and special strains of Asters we would not advise your attempting to grow the seed for the market as this is a very highly specialized industry. We do not know of any statistics that can be given you, but the industry is carried on in a very few places in the world where conditions are especially favorable, one of them being in the western part of New York.

Farming in Maine

What crops would you advise me to raise in Washington County, Maine, in a sandy, gravelly, loamy soil that has just been cleared? Potatoes and beans have been successfully raised in the neighborhood.—G. B. B., Maine.

—KNOWING, as you probably do, climatic and other conditions in Washington County, it is difficult for us to make any detailed suggestions as to the best crops for you to attempt to grow there since a decision should depend largely on extremely local conditions as regards soil and topography, the distance to and nature of available markets, the condition of the roads, nearness to railroads and other means of transportation and the amount of capital and labor that one is prepared to put in the farming operations. There would seem to be, however, no reason why either potatoes or sweet corn or peas for canning should not prove well adapted for the land you wish to develop. It occurs to us that you can obtain suggestions or information as to cultural experiments carried on there from the Industrial Department of the Maine Central Railroad, Portland, Maine. Your State College of Agriculture at Orono should also be able to help you.

How to Make a Rose Bed

In making a Rose bed in my lawn, should the sod and upper layer of earth be removed and discarded, to be replaced by good soil? Can good results be obtained by removing two layers of soil (ten or twelve inches deep each) and then placing the top soil with sod at the bottom while the soil previously at the bottom is placed at the top of the bed?—J. A. S., New York.

—IN PREPARING a Rose bed the soil should be excavated for two feet or so, the broken sod placed at the bottom; then a layer of soil thoroughly mixed with manure, and finally a layer of good loam containing slightly less manure to avoid the possibility of burning the roots. It is best not to set any plant with its feeding roots in the subsoil—that is, soil six inches or more below the surface—since this is liable to be acid and of poor physical and chemical condition. For this reason in planting trees the top soil is put at the bottom of the hole where the roots go. In planting small bushes or seeds it would be necessary to keep more of the top soil near the surface.

Fertilizers

What is the best fertilizer, other than stable manure, for a light soil that has been neglected? Is it advisable to use commercial fertilizer in rows or drills at the time of planting vegetable or flower seeds? Are tobacco stems a good fertilizer? —S. A. J., New York.

—A LIGHT soil needs vegetable matter before all else. Where expense is not too important, the prepared humus materials advertised in the farm and garden journals are valuable in building up the soil of the garden; otherwise green manure crops (that is, clover, vetch, rye, etc.) plowed under, are the best thing in place of stable manure. Commercial fertilizer used in the drills and hills is extremely helpful. Tobacco stems have some little fertilizing value and are also useful in repelling insects.

Nitrogen and Phosphorus, with Wood Ashes

In what proportion should nitrogen and phosphorus be used with wood ashes to make a good fertilizer for a rather sandy garden soil?—E. P. A., Rhode Island.

—ACCORDING to several authorities a standard fertilizer mixture for garden crops should contain about 4 per cent. of nitrogen, 8 per cent. of phosphoric acid, and 10 per cent. of potash. On this basis a mixture could be prepared of 250 pounds of nitrate of soda, 100 pounds of ammonium sulphate, 350 pounds of tankage to supply the nitrogen; 900 pounds of acid phosphate and, assuming unleached wood ashes to contain 5 per cent. of potash, 4,000 pounds of these. This being a rather impracticable quantity, it would be well to reduce it and add some of the potash in the form of sulphate or muriate. Of course it is not essential to stick to these figures, though they are valuable as a guide. We should also mention that for all sandy soils one of the best possible fertilizers is well rotted stable manure. You can use this in practically unlimited quantities if well worked into the soil and, although it carries some potash itself, it can be reinforced in this respect by the use of any available quantity of wood ashes applied after the manure has been plowed under.

The Cost of a Dutch Colonial House

I want to build a house for permanent occupancy, about 30 by 40 feet over all, first-class in every way, style, Dutch Colonial. Could I build such a house for $7,000?—W. H. S., Penna.

—IT SEEMS reasonable to expect a Dutch Colonial frame house, built in a first-class manner, with 1,200 square feet floor plan area, for $7,000. We should say, however, that this is the lowest limit rather than a fair average. It would depend a great deal on whether you choose expensive heating, plumbing and lighting fixtures. You would probably have to content yourself with a good Georgia pine floor rather than oak or other hard wood. At the present time prices of building material and labor are somewhat lower than they have been and the chance for getting what you want at that price is rather good.

Proper Time to Plant Junipers

What is the proper time to plant Junipers? I have frequently transplanted specimens from the woods, but with very little success.—H. G. P., Montana.

—THE best time to transplant Juniper is in the spring. The transplanting of trees taken from the forest is not usually successful unless the work is done when the trees are very small. Nursery stock is much more satisfactory for the reason that it has been transplanted from one bed to another, and in these different movings a large ball of roots have been developed.

Japanese Yew

Would the Japanese Yew be an appropriate dwarf evergreen to plant at the south end of a piazza, having sun all winter but some shade in the summer? Would it be sufficiently ornamental and how tall does it grow?—E. W. M., New Hampshire.

—WE DOUBT if the Japanese Yew would thrive in this situation if the shade is heavy. In Japan it ultimately attains a height of one hundred feet, but it grows very slowly. If it will endure the conditions under which it must grow, it should be perfectly satisfactory as a low-growing plant. The native Hemlock would be a more satisfactory tree to plant at the south end of the piazza, and it can be cut back to keep it under proper control as to height.

Constructing a Church

We are building a church, 32 x 60 ft., of moss rock, and wish to use four steel I-beam girders 31 feet long. What should be the size of the girders necessary to support the joists? There are no partitions on the floor, and as the basement of the building is to be used as a gymnasium, we do not want posts in it.—F. N. P., Colorado.

—USING four steel I-beams gives a span of 12 feet between each beam. This would require a 20-inch I-beam 80 pounds. By using three I-beams there is a span between beams of 15 feet and this also would require a 20-inch I-beam 80 pounds. So you will see that by using four beams there is one beam too many. It is necessary to use this size for a 12-foot span, as any smaller beam or lighter weight would not do for even a 12-foot span. The wooden floor joists which I presume will be of spruce should be for the 12-foot span 3 x 10s, 12 inches on centres, and for the 15-foot span 3 x 12s, 16 inches on centres.

Primulas for Winter Bloom Indoors

How are Primulas chinensis fimbriata and obconica gigantea grown for winter blooming in the house?—G. B. R., Kentucky.

—Sow the seeds in March or April in pans; prick off in thumb pots when large enough and keep well rooted during the summer. When in 4-inch pots place the plants in a coldframe, using about two inches of cinders beneath the pots, and spray often and keep shaded with a slat shade. Pot when necessary, but a 6-inch or 7-inch pot should be large enough to finish in. Feed freely when flowering starts. Use good rich soil with plenty of drainage.

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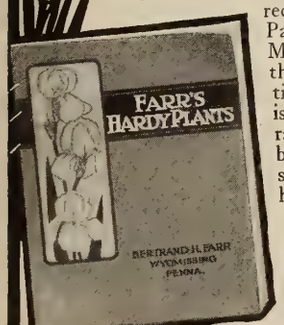

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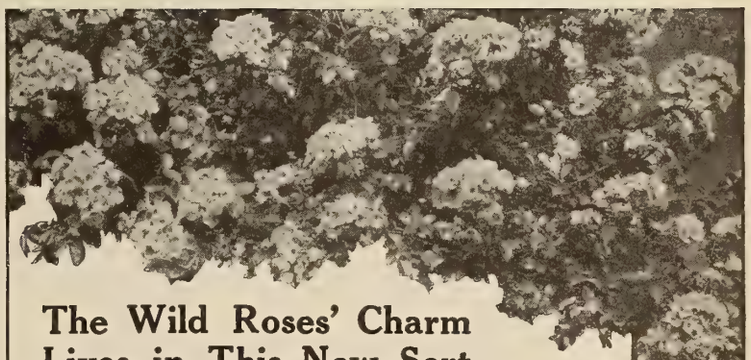

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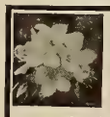

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EARLY in January we ordered our seeds and the implements we thought we would need and toward the end of March, after the ground to be given over to vegetables had been deeply dug, we started some cucumber seeds in "midget" frames. These small, handy frames are twelve by fourteen inches and are splendid for getting ahead with the more tender fruits and vegetables, such as squash, cucumbers, melons, etc. We dug holes the size of the frames and about eighteen inches deep, putting in hot manure which was firmly trampled down and well watered. After this the earth was replaced, mixed with half a pail full of humus and two or three handfuls of fine ground bone-meal. This was formed into a nice hill with the top about three inches below the glass of the frame. The latter was placed over the hill and the sides were sunk three or four inches below the level of the ground. Hot manure was banked about the outside of the frame and covered with earth upon which radish seed was scattered. The sash was then put on, some sacks thrown over all, and the frames stood for three days to heat up and cool a little. On being tried with a hotbed thermometer and finding the temperature about 85 degrees, it was decided to sow the seed.

Cool and Crisp was the variety chosen and the seeds were scattered only slightly below the surface of the hill and a few radish seeds were sown here, too. The bed was watered, covered with sash, screens of cheesecloth were put over the glass, and the sacks were put back over the whole thing to keep the beds warm and dark, after which they were left strictly to their own devices for three days. After this each day the sacking was taken off in the morning and replaced at night and the thermometer watched to see that it did not get over the 85 degrees. At night the temperature must have gone slightly lower. The seeds germinated well and soon a fine crop of young cucumber plants were to be seen. Water was given carefully when the surface of the ground appeared dry but not allowed to touch the leaves.

The cheesecloth screens were kept on during the day and the beds were ventilated to prevent damping off and to make the plants stocky. After they had three of their second leaves the plants were thinned out to four in a frame. Soon the frames were filled with the cucumber plants and one sunny April Sunday morning we decided to make an expedition after some pansy plants. When we left home it was not warm at all, just sunny; but before we returned, an hour and a half later, it had become really hot. My first thought was to inspect the cucumbers. They were *burnt to a crisp!* The sash had not been opened and the sun had given them a good broiling.

That afternoon they were all pulled up and the hill turned over with a small hand fork and more seed planted. This crop grew just as well as the first, being carefully engineered past the boiling point, and when the leaves came dangerously near the glass, the frame was raised to the surface of the ground where it stayed about two weeks and was removed altogether, toward the beginning of June. The ground was well forked and the vines left to grow. Soon an enormous crop of fine cucumbers was the result of our labors. A bushel picked at one time and plenty left on the vines was not at all unusual. Before the vines began to show signs of yellowing three more hills were planted in the open. After the young plants had their second leaves, salt hay was spread over the surface of the well cultivated soil and close up to the roots of the cucumbers. The vines grew splendidly over the hay and seemed to enjoy the moisture that was, in this manner, retained in the ground. This second crop will do until frost, the first fruits being gathered the last week in August. The radishes planted on the outside of the frames were eaten and the others left to attract any insects that might prey on the baby cucumber plants and, after they were growing vigorously and showing power to resist attacks, the horny old radishes were removed.

Lettuce was grown between the first hills and on the ground where the second hills were planted, but was out of the way when the cucumbers were ready to occupy the ground.

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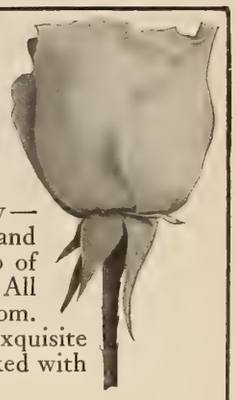

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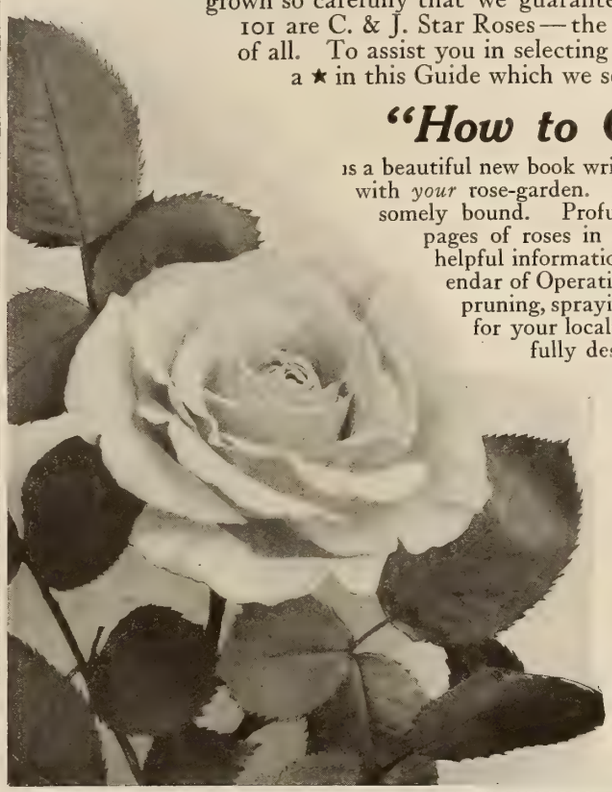

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DOUBLEDAY, PAGE & COMPANY GARDEN CITY, N. Y.

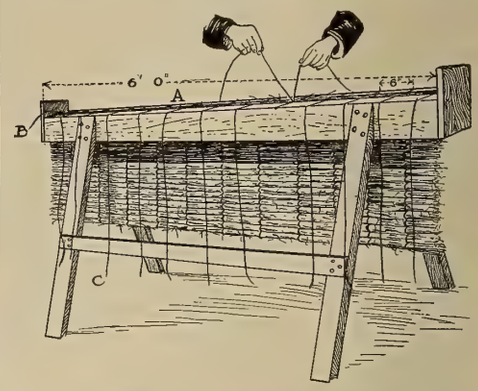
The great secret about raising cucumbers, or indeed anything, is to keep them growing and not to let them be checked at all. We never let the sun shine directly in the frames but used a cheesecloth screen whether the sash was off or on. If the sash was off the screen was propped up so that it shaded the plants and let in the air.

New York. ETHEL A. S. PECKHAM.

Home Made Hotbed Mats

IN THE January issue of THE GARDEN MAGAZINE there is an article on the making of straw mats for hotbed protection. This has suggested the story of our experience where a hundred mats were in constant use, the constant expense of purchasing new ones to replace those worn out, leading to the final making of our own. And this making of mats is excellent employment for idle garden labor in winter.

For making the mats we use a horse, like a carpenter's horse, one that any handy man can make. It is made of two 2 x 6 in. planks (marked A), on edge, braced together with legs the proper height for men to work at as with any bench, there being a space left in between both to allow the thickness of the mat to be made and go down as fast as made. Wide saw-cuts are made on the upper edges, at C, for the proper spacing of the tarred strings to be placed at equal distances. Take a small bunch of straw, chop off the ends with a small axe to square them, put these ends against the cleats at each end of the horse, the tops of straw lapping over each other in the middle; then tie each string with a single knot, push this down through the planks, and make another similar handful of straw and tie again. The width between the planks will govern the thickness of the mat, and if the mat does not push down easily, there is too much used. An inch and a half (as at B) is about the right width between planks. We make mats six feet wide by seven



feet long. These cover two regular hotbed sash, are rolled up and down from the back of frames and are easily handled.

The spacing of the strings may be regulated by the saw cuts. We use each cut at the ends of mats for a foot in length, as this is where the wear by handling comes. After a foot in length is made, each second string is dropped, but if desired, these may be carried all through the mat. Some prefer the strings at four inches apart at the ends and sides, which makes for strength, with eight-inch spacing in the middle of same. This rests with the maker and the spacing of saw cuts.

We grow our own rye straw for the making of the mats. There is ample time to sow winter rye after the harvesting of the potato crop. The straw should be "cut in the milk." It has then all the toughness needed to make good mats, and still not be brittle. If the grain is allowed to ripen there is always some seed left, even if the rye is threshed, which will attract mice and rats when the mats are stored for the summer.

To get the best results the straw should be mown with a scythe with a "cradle" attached, but failing this, machine cut will do. The straw must be handled with care, however, to have it come out as near straight as possible in order to avoid waste.

Illinois. E. O. ORPET.

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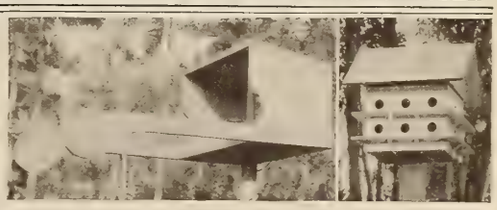

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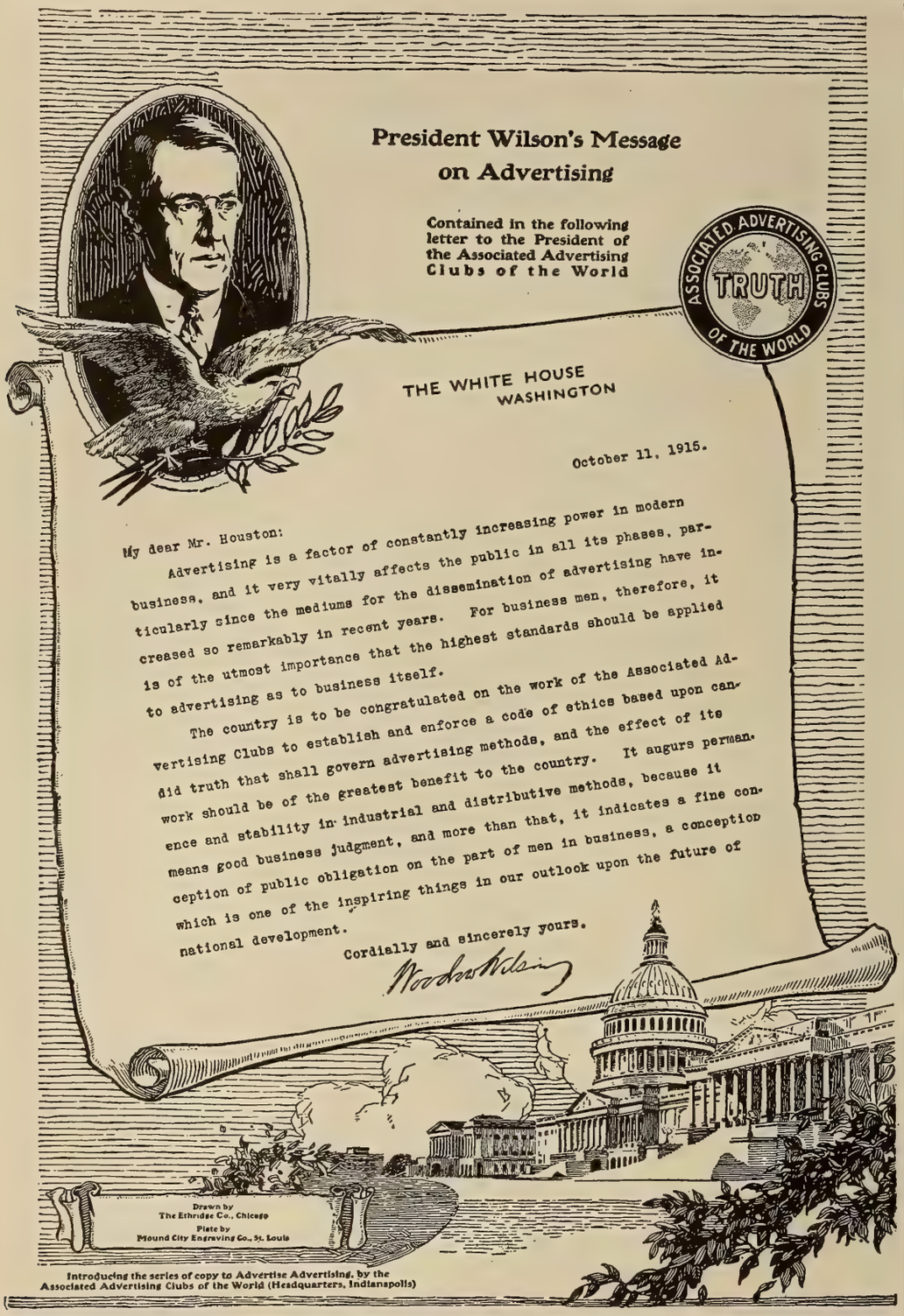

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THE GARDEN MAGAZINE **Garden City, New York**

Types of the Black Walnut

IT IS surprising to find what a great difference there can be between the nuts borne by two trees of the same species. The Black Walnut is a signal example. And, since no planted nut can be counted upon to reproduce fruit of an exactly corresponding type, an examination of this question cannot fail to induce the belief that the Black Walnut should certainly be grafted. It is the only way to make sure of a tree's producing nuts of an extra fine type.

The same Walnut tree will, year after year, produce the same type of nut, though the crop usually varies in the degree of its abundance; it has always seemed to me that a Walnut produces most heavily every *third* year, providing of course, that no late spring frosts destroy the bloom. Yet, while the same tree will produce the same nuts, its near neighbor, which may happen to be a parent or a child, and which may be, in appearance, a very much finer tree, will bear nuts of a far inferior sort. For a long time I believed this due to soil, situation, and other conditions favorable or unfavorable to the highest development. But, while such conditions may have some slight effect, they do not control the matter. It not infrequently occurs that the tree in the less favorable position produces the finer nuts. The secret is in the character of the tree, which seems to be a quality as subtle as human personality, and which is to be reproduced by no method but grafting.

To emphasize the worth of grafting the Black Walnut, I may state that during the present autumn I gathered nuts from upward of a hundred trees, and from almost as many situations —from those growing on mountain slopes to those standing along creeks in a valley; some were taken from rich bottom lands, and some from high slate hills. When hulled, these walnuts varied amazingly in size. Only four trees of the hundred odd had produced nuts of the maximum size; and all of these were situated in localities which might be considered only fairly favorable. To fill a quart measure, 52 of the smallest nuts were required; of the next or medium size, 36 were required; but of the largest, only 18 were required. Thus it would take practically four times as many nuts to the bushel of the smallest size as of the largest size. In addition, I may say that the trees bearing the largest nuts bore *as many* as those bearing the small ones or the medium sized ones; so evidently quantity had not been sacrificed to size. Nor were the larger nuts any thicker in the shells or less plumply filled than the inferior ones. The tree bearing such nuts is simply a finer tree in every respect than the yielder of smaller nuts.

In view of the facts, which have been ascertained by long and careful investigation, is it not well worth while to graft the Black Walnut? As is known, the tree is extremely vigorous and hardy, and it has practically no serious enemies. Moreover, the grafting is not more difficult than the grafting of Pecans—and a million or more of these are grafted in the South every year. Large Walnut trees yield to top-grafting; while the smaller ones can be budded, whip-grafted, or tongue-grafted.

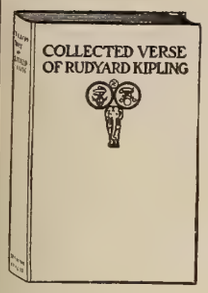
Pennsylvania. ARCHIBALD RUTLEDGE.

Cherry Tree Gummosis

IN THE December number of THE GARDEN MAGAZINE, there was given to an inquirer advice concerning gummosis, a disease affecting cherry trees. Whenever it affects my trees, I cut out the bark and wood until all the discolored part is gone, and put good adhesive whitewash over the wound. Cherry limbs grafted on mazzard stock are very seldom affected with this gummosis. When shaping your tree, try to alternate the branches so as to avoid crowding.

About three years ago I had one tree that was about two inches in diameter, a budded tree that was badly affected on the trunk. I cut off so much bark and wood that I almost honeycombed the tree. I then cut back the top to lessen the drain on the tree and it is now a fine healthy tree, although it has not grown so rapidly as the others. The tree is now seven years old and bears good fruit.

Marion, Oregon. FRANK HAACK.



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COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Lectures in March

1. Short Hills, N. J., Garden Club: meeting.
   Kentucky Society of Florists, Louisville, Ky.: meeting.
2. Marshfield, Mass., Garden Club: meeting.
   Worcester County Horticultural Society, Worcester, Mass.: annual meeting.
   Albany, N. Y., Florists' Club: meeting.
   Dayton, Ohio, Florists' Club: meeting.
   Milwaukee, Ill., Florists' Club: meeting.
3. Pasadena, Calif., Horticultural Society: meeting.
4. Massachusetts Horticultural Society, Boston, Mass.: lecture, "Practical Demonstrations of Methods Used in the Propagation of Plants," T. D. Hatfield.
6. New Bedford, Mass., Horticultural Society: meeting.
   Colorado Florists' Club, Denver, Colo.: meeting.
7. Lake Geneva, Wis., Gardeners' and Foremen's Association: meeting.
   Buffalo, N. Y., Florists' Club: meeting.
   Florists' Club of Philadelphia, Pa.: meeting.
   Minneapolis, Minn., Florists' Club: meeting.
   Pittsburg, Pa., Florists' and Gardeners' Club: meeting.
8. Nassau County Horticultural Society, Glen Cove, L. I.: meeting.
   Short Hills, N. J., Garden Club: meeting.
   Morris County Gardeners' and Florists' Society, Madison, N. J.: meeting.
9. Chicago, Ill., Florists' Club: meeting.
   Omaha, Neb., Florists' Club: meeting.
   St. Louis, Mo., Florists' Club: meeting.

9-10. Worcester County Horticultural Society, Worcester, Mass.: spring exhibition.

10. Connecticut Horticultural Society, New Haven, Conn.: meeting.
11. Dobbs Ferry, N. Y., Horticultural Association: meeting.
    Mass. Horticultural Society, Boston, Mass.: lecture, "Taming Wild Blueberry," Frederick V. Coville.
13. Park Garden Club, Flushing, L. I.: meeting.
    Rochester, N. Y., Florists' Association: meeting.
    New York Florists' Club, New York City: meeting.
    Garden Club of New Rochelle, N. Y.: meeting.
    Germantown, Pa., Horticultural Society: exhibition.
    Cincinnati, Ohio, Florists' Club: meeting.
    Springfield, Ohio, Florists' Club: meeting.
14. Syracuse, N. Y., Rose Society: meeting.
15. Tarrytown, N. Y., Horticultural Society: meeting.
    Shedowa Garden Club, Garden City, L. I.: lecture, "Bulbs," Chester Jay Hunt.
    Short Hills, N. J., Garden Club: meeting.
    Rhode Island Horticultural Society, Providence, R. I.: meeting.
16. Marshfield, Mass., Garden Club: meeting.
17. Pasadena, Cal., Horticultural Society: meeting.
18. Massachusetts Horticultural Society, Boston, Mass.: spring flower show.
20. Park Garden Club, Flushing, L. I.: meeting.
    Florists' and Gardeners' Club of Rhode Island, Providence, R. I.: meeting.
21. Lake Geneva, Wis., Gardeners' and Foremen's Association: meeting.
    Gardeners' and Florists' Association of Ontario, Toronto, Ont.: meeting.
    Portland, Ore., Floral Society: meeting.
22. Short Hills, N. J., Garden Club: meeting.
23. Minnesota Garden Flower Society, Minneapolis, Minn.: meeting.
24. Connecticut Horticultural Society, Hartford, Conn.: meeting.
25. Dobbs Ferry, N. Y., Horticultural Association: meeting.
    Massachusetts Horticultural Society, Boston, Mass.: lecture, "Sweet Pea Diseases and Their Control," Prof. J. J. Taubenhaus.

25-April 2. Society of American Florists and Ornamental Horticulturists, Philadelphia, Pa.: Fourth National Flower Show.

29. Short Hills, N. J., Garden Club: meeting.

New York Flower Show—April 5th–12th

THE complete schedule of prizes is now ready. Numerous additions and a number of special prizes will be announced.

The ladies will again operate the tea garden, the proceeds to be devoted to a charity to be named later, and the whole of the east end of the second floor has been relegated to their use.

The committee has had prepared a "sticker" or stamp poster to be used on stationery, and is sending supplies of these stamps to all who will use them.

Two of the great feature classes of the Show will be very creditably filled. At least five entries are promised for the class covering Rose gardens, and there are to be three entries in the Rock Garden class.

Special "cut flower" days for Roses, Carnations, Sweet Peas, etc., will be arranged and announced in due season, or dates may be had on application to John Young, Secretary, 53 West 28th St., New York.

The National Flower Show, Philadelphia

THERE is every reason to believe that the National Flower Show, to open in Philadelphia, Pa., March 25th and close April 2d, will prove a success in every way. The final schedule shows the premium list to cover prizes aggregating $20,000 in value. Feature exhibits have been greatly encouraged, through the offer of liberal prizes. The sum of $1,000 is offered in the Rose Garden class alone, and it is expected that there will be at least four entries in this class. A novel class will be one arranged for aquatics. Lovers of the Carnation will be able to enjoy the exhibition of the American Carnation Society, in celebration of its jubilee anniversary; a special silver medal has been struck of the Society for award to all winners of blue ribbons. Magnificent exhibits of Roses, Orchids, spring flowers, foliage and flowering plants will be staged and, in view of the substantial prizes offered, competition ought to be very keen.

Mrs. J. Willis Martin, President of the Garden Club of America, is at the head of a corps of young ladies who are to conduct a Tea Room, the proceeds of which are to be devoted to charities. A handsome booth will be installed for the use of the Club, and dancing will be a feature of the garden.

A rather unusual feature of the show will be an extensive exhibition by the Aquarium Society of America, the classes in which are quite numerous, cups and blue ribbons being freely offered for awards.

A Reading Room for Garden Lovers

THE Women's National Agricultural and Horticultural Association have recently opened an office at 600 Lexington Avenue, New York, where they have a reading room attractively fitted up for the use of their members. They have a wide selection of garden books, and any one who is interested in gardening is invited to come and make use of them. Among other books they have a very convenient little volume, a pronunciation of plant names, that was recently published by the Garden Club of Michigan.

Recent Books

Continuous Bloom in America. By Louise Shelton. Charles Scribner's Sons, New York. Illustrated; $2.00 net.

In which the author tells of the results for which she has long striven: satisfactory and continuous bloom from May 20th to frost. What plants to use, where to place them, and when they bloom is the scheme offered, supplemented by delightful planting charts. Certainly a book that every garden owner should have at elbow when planning next year's garden.

Our Mountain Garden. By Mrs. Theodore Thomas. E. P. Dutton & Company, New York. Illustrated; $1.50 net.

A most intimate little story of the home building and garden making of two semi-invalids, husband and wife, who seek health in the mountains of New Hampshire. It describes in charmingly simple detail the converting of a wild, unkempt tract of land into a place of graceful, natural beauty, and it contains many invaluable hints for the makers of gardens everywhere.

An American Fruit Farm. By Francis Newton Thorpe. G. P. Putnam's Sons, New York. Illustrated; $2.50.

A very complete guide to the would-be fruit grower, telling him how to select land suitable for a fruit farm, how to prepare the soil for planting and how to plant and care for his trees. Also, and perhaps most important, how to handle his crops so as to realize a profit. The book is a record of experience covering a period of about a quarter of a century.

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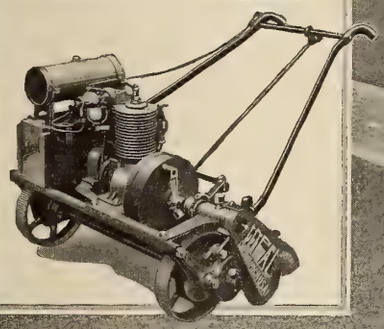

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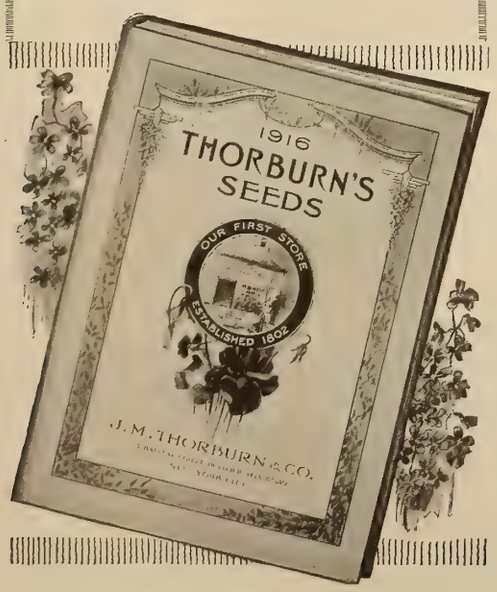


Shrub Combinations That Go Well

IN PLANTING and arranging the flower garden one should be very careful to place the different plants in situations where they are not only most effective in themselves but where they tend to give the group, as a whole, its most pleasing aspect. Much care is taken to place the different flowers as regards their height, color, time of bloom and foliage value. Pleasing combinations are readily noticeable because they are generally based upon the color harmony existing between the flowers themselves. In the case of shrubs, however, foliage as a rule plays a more important part than the bloom, which lasts but a short time at the most. Good effects in grouping shrubs generally depend, therefore, upon harmony or pleasing contrast in foliage and to a smaller degree on the flowers or fruits.

In dealing with shrubs, a new element, texture, which in the case of flowers is more appropriately placed under the heading of "foliage value," now assumes a rôle of greater importance. By texture we mean the fineness or coarseness of the dominant thing in the shrub as we see it; in winter it is the twigs or branches, while in summer the leaves first attract our attention.

While texture plays an important part in shrub groupings, scarcely less important is the habit of growth. The manner of growth of plants roughly divides itself into two general classes; first, shrubs having a compact, tightly knit form of growth such as Thunberg's Barberry; and secondly, shrubs of a more open habit, of which Staghorn Sumac is a good example. Shrubs of the second class are beautiful on account of their graceful manner of branching and their irregular outline. The effects of lights and shadows and the individual beauty of the leaves and twigs are more apparent in shrubs of this class. The two groups grade into each other so that it is sometimes a problem to determine in which class to place a shrub. It is evident, however, that typical examples of the two classes when planted together are apt to prove inharmonious.

Thunberg's Barberry and Staghorn Sumac together are apt to be displeasing to the eye. If Spiraea Van Houttei be planted between them the effect is quite the opposite, showing that the former bad effect was not due so much to texture as to the wide difference in their habits of growth.

In the arranging and planting of shrubs, as is the case with flowers, place them in situations in which they will do the best. That is, take into account whether a shrub requires a sunny or a shady situation and the kind of soil to which it is adapted. As a rule, shrubs of similar texture and habits of growth go well together. Shrubs of the same family and closely allied families generally form accordant groups when associated with one another. The Viburnums form pleasing masses when they are planted together in variety. They are coarsely textured but rank among our most valuable ornamental shrubs. Besides showy flowers and decorative fruits, they possess handsome foliage which generally assumes wonderful fall colorings.

The Dogwoods are another group which exhibit many pleasing effects when planted by themselves or with Viburnums. The family contains many members which are of especial value. The Silky Dogwood, Cornus amomum, is much used when the effect of distance is desired. The purplish character of its branches and twigs suits it for this purpose. The red-branched Dogwood is another shrub chiefly valuable for its winter color. In front of evergreens they are especially effective. Their brilliant red branches against the green background do much to brighten the winter landscape.

Attractive shrub combinations are not due to texture alone. Color plays an important part. This is seen not only in the foliage but in the blossoms and fruits as well. When Snowberries are planted in front of Lilacs or Honeysuckles the effect is pleasing because of the color harmony existing in their foliage, the leaves of each shrub having a peculiar bluish tinge.

In the question of texture the quality of leaf surface plays an important part. Some shrubs have leaves with a thick leathery surface such as Viburnum lantana, or Wayfaring tree, while others have foliage with a smoother surface, and there are still others whose leaf surfaces are distinctly shiny. Aralia pentaphylla, Rhamnus frangula and Cornus mas are shrubs having this last characteristic.

Although these shrubs have few flowers they are most valuable on account of the striking beauty of their foliage, especially when planted together. Do not get the impression that shiny-leaved shrubs can only be planted with others having this same characteristic. Snowberries or Indian Currants, whose leaves are of a much duller hue, look very well in front of Rhamnus frangula. In plantings at the corners of steps and in similar places where it is necessary that the shrubs should be of a type that can always be kept within bounds, Thunberg's Barberry in front of Spiraea Van Houttei seems to serve the purpose to best advantage. Spiraea Thunbergii can be substituted for the Barberry and the effect still be retained. Aralia pentaphylla and Matrimony Vine, Hydrangeas and Aesculus parviflora, Viburnum dentatum and Rhus aromatica, Gray Dogwood and Rosa blanda are all good combinations which depend chiefly upon harmony in their foliage for their good effects.

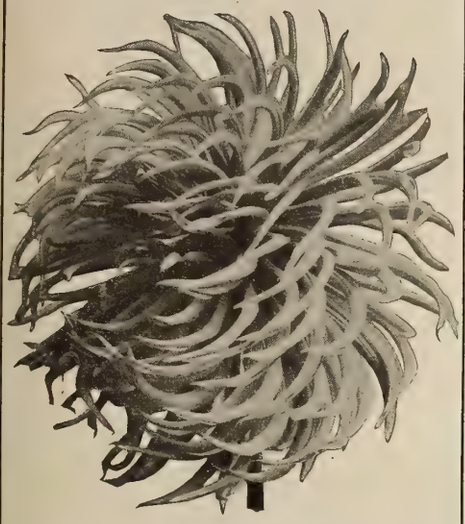
Color harmony in blossoms may be seen to good advantage when Rosa setigera (Prairie Rose) is planted in front of Common Elderberries. These two shrubs bloom at the same time and the pink flower of the Rosa setigera and the white blossoms of the Elderberry present a most delicate and beautiful effect.

Few if any of the spring flowering shrubs can surpass in splendor the Forsythias. One of our earliest shrubs to bloom in the spring, the bright yellow flowers coming out at a time when nearly all other shrubs are still dormant, make this wonderful bush a great favorite. The brightness of the yellow blossoms illuminates the densely laden branches with a rare beauty. If Mertensia virginica (the common Bluebell) be planted directly underneath, the effect is charming. This is particularly noticeable in the case of Forsythia suspensa, the drooping variety. Here the blue and pink blossoms of the Mertensia can be faintly seen through the drooping branches of the yellow Forsythia. A more subtile and beautiful effect would be difficult to imagine.

If one prefers the mixture of pink and white blossoms at this time a mass of Redbuds and Juneberries will amply satisfy him and fulfill his fondest expectations. Every one is familiar with the Lilac. Perhaps its only drawback is its tendency to become bare and untidy around its base. [Largely because we do not give it room to spread as nature meant.—ED.] If German Iris are planted beneath the Lilacs the bare appearance is not only removed, but the flowers of the Iris and the bloom of the Lilac make a lovely picture.

The combinations which have been discussed have all been products of the spring and summer. Good effects in the fall must necessarily depend upon the fruits or upon the fall colors. The fall colors of shrubs and trees rarely conflict. Shrubs which have decorative autumn fruits are highly desirable as they remain even after the foliage is gone. Snowberries and High-bush Cranberries have berries which form a delightful contrast when planted together. Rosa rugosa, whose luxuriant dark green

Let Me Introduce Miss Stredwick



This is undoubtedly the finest of cactus dahlias in the world; the form of flowers is excellent, the center perfect, the color is truly beautiful, a soft yellow at base, quickly changing to deep pink, with lighter tips, **50c.**

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ITS LIFE AND BEAUTY

To begin, a small black seed: Sow NOW in warmth in the house. By April strong plants to set out after frosts are past. 15 to 20 ft. high during summer, lasting till fall.

Foliage: Glossy bright green fernlike, enchanting.

Flowers like miniature morning glories, in rich masses covering the branches.

Color, A dazzling fiery Cardinal scarlet.

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5 seeds 10c 10 seeds 15c 20 seeds 25c

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foliage is always attractive, is a very good shrub to plant with Snowberries. The brilliant red hips of Rosa rugosa form a striking contrast against the white fruits of the Snowberry.

Tall shrubs generally have a tendency to become bare around the base as they grow older. To hide this defect as well as to clothe the plantation with verdure down to the grass, it is usually the custom to plant smaller shrubs in the foreground. By careful selection of these shrubs it will be possible to achieve many beautiful effects.

Illinois. ERLE OGDEN BLAIR.

Storax, a Spring Beauty

ONE of the most pleasing sights in early summer in my garden is a Storax, or Japanese Silver Bell (Styrax japonica), a shrubby tree about twelve feet in height that is covered by a mass of fine, white, rather greenish-tinted bells hanging gracefully from the undersides of every branch. The fragrance, particularly in the evening, reminds one of the scent of orange blossoms.

The Storax was given to me as a rarity and was a seedling from a plant that had grown to be twenty-five feet high. The tree form is quite rare. The branches of the shrub or tree

The Japanese Silver Bell blooms in early summer. Its flowers are greenish-white and fragrant

are inclined toward a lateral growth suggesting somewhat the Dogwood, though of a closer growth, and the leaves are finer and more pointed.

The Storax is free growing and is not frequently attacked by disease or insects. In fact it has only been infected once since I have had it, and then a single spraying of Scalecide was sufficient to effect a cure. It flourishes well on a well drained, loamy soil; mine has grown to perfection near the edge of a strata of rock, receiving a dressing of well-rotted manure both spring and fall, the ground being kept cultivated in a circle around the tree three feet in diameter.

New Rochelle, N. Y. A. VAN GELDER.

Leaf Roller of Fruit Trees

APPLES, pears, plums, cherries and, to a lesser extent, peaches, are liable to injury from this pest which has but recently become troublesome in New York State, especially. The authorities of the State College say it is difficult to control because of its habit of hiding in the opening buds or in rolled leaves; but the eggs are susceptible to the effect of miscible oils which, when thoroughly applied, have destroyed from 74 to 92 per cent. of the eggs. The oils should be applied in the spring, at the active growing period of the tree, but always before the buds burst, and a spray of 1 gallon of the oils to 15 gallons of water is recommended, the spraying to be done on a day when the temperature is above freezing. One application only is necessary.

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They take the drudgery out of garden cultivation and make it pleasant recreation. Thousands of Planet Jr hand tools (seed drills and wheel-hoes) are used in kitchen-gardens as well as in market-gardens, and wherever best and biggest crops are wanted with least work. Fully guaranteed.

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THE HOUSE IN THE GARDEN

A New Feature to Appear in THE GARDEN MAGAZINE

¶ Under this heading will appear each month an article, or a series of articles, which will attempt to formulate that intangible, but nevertheless recognizable link between the house and the garden.

¶ Perhaps the most charming of gardens are those that lie so close to the house that they form but a fragrant colorful extension of the four walled rooms. The house should expand into the garden and the garden lead into the house, giving little consciousness of the transition from the end of one and the beginning of the other.

¶ Have you not been in gardens that led with an air of great hospitality to the welcoming door of the house; then there are houses that have an air of being a part of the intimate garden just beyond the door. It is with such houses that this department will concern itself.

¶ No house should be built without taking thought for the garden—the house and garden being planned together. The house planned and built in relation to its garden is a home.

Early and Long Flowering Arabis

AT THE time of year when every one longs for a touch of color in the garden, Arabis albida commences to bloom. It is white and fragrant, and fits in admirably with early tulips and daffodils. I have masses of it in my garden associated with the various early flowering plants; when it gets through blossoming, I cut away all the seed stalks, and also have to throw away a good deal of the plant, as it crowds upon itself if it cannot grow out in all directions. During the summer it is always a pleasing ground cover. It wilts in the hot sun, even after a good rain, but otherwise it is a vigorous plant.

The first Arabis I ever had I raised from seed sown in pots in the dining-room window the last of March. As soon as outdoor weather permitted, about April 17th, I transplanted it to a sunny location. It failed to blossom that spring, but it grew well all summer. That fall I moved

Arabis albida, which commences to bloom in the spring just when one longs for a touch of color in the garden

it to the edge of the kitchen garden, among the early tulips and other early flowering plants. I so thoroughly covered some of it for the winter that most of it died out entirely. There were a few roots that were less covered and they pulled through nicely and blossomed; but as there were so few plants to blossom, the pretty feathery effect did not make much of an impression. That summer I let the Arabis grow out on all sides as far as it liked. In the meantime, in June, I was starting more clumps in other parts of the backyard, and at the same time planting cuttings at the west porch.

The mass of it in the picture is four years old. I never protect it for the winter. The snow that falls is its only covering. The picture was taken on April 29th the plant had then been in blossom for more than ten days. The two clumps of tulips are each made up of three lemon yellow, early single tulips and three Murillo tulips. Between the two clumps of tulips is a Forsythia suspensa, to be gradually trained to the railing of the porch. There appears to be a most successful combination for just that situation—the soil is mostly clay, too well drained and too much shaded by the projecting roof of the porch. The sunshine is intense here in the afternoon all summer, and in winter there is always a strong draught of cold air. The leader from the roof supplies the necessary amount of moisture in the soil in the summer.

Illinois. KATHERINE K. PERRIGO.

Grass Under Trees

REFERRING to the inquiry and answer on page 54 of the September, 1915, issue, I submit that Festuca rubra is about the best proposition where the pine needles fall thickly, and kill out the more tender grasses.

Pennsylvania. G. C. W.

Water Your Garden This Way

Just turn on the water, then turn the water any way you want it to water, and let it water like the gentle rains of the heavens.

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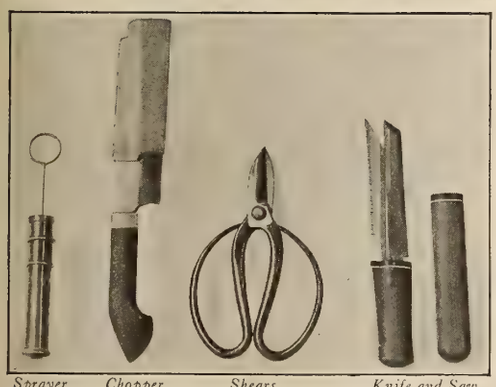

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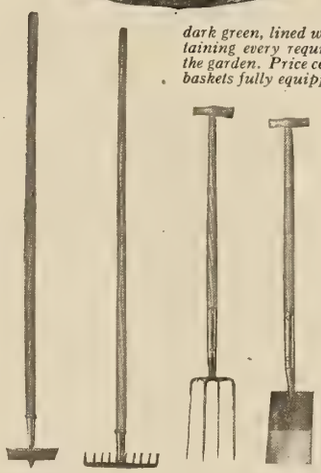

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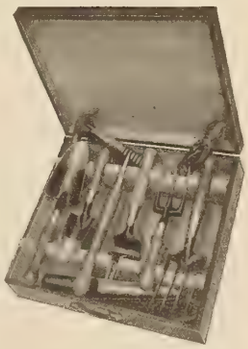

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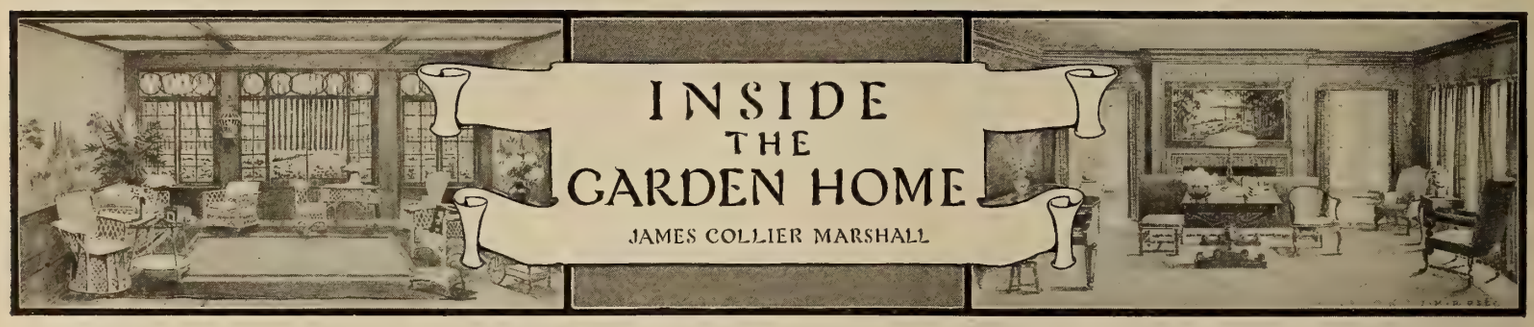
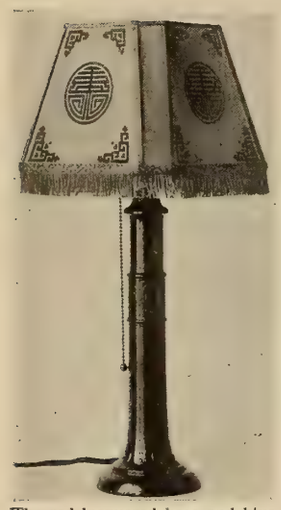


Why Not Wicker?

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.


The red lacquered base and blue and yellow painted shade of this lamp will combine well with wicker

SO MANY inquiries are made of me regarding the appropriateness of wicker furniture in the living rooms, that it occurs to me that a few words on this subject may be helpful to us all.

Those who are about to furnish new homes as well as those who contemplate the doing over of old furniture, will find much to interest them in the various new designs of wicker to be seen in the shops, and they will do well to use some of this good looking and comfortable material in their decorative schemes. Modern wicker furniture has an array of fine qualities that win favor. It is excellently made, attractive, comfort yielding, and durable, being at the same time adaptable to many different settings. It is the one modern material that combines easily with antiques and particularly those early American pieces that are so popular to-day, but which are somewhat stiff and unyielding.

Among the new designs that will undoubtedly prove popular there is a very interesting chaise longue that is intended for use in the combination sitting and bedroom. Unlike the usual couch or day bed, it has two curved ends about the height of chair arms, though there is no back, and so constructed that a box spring may be added for comfort. This bed comes in single and three quarters width. Simple in line though sturdily built, it will, when fitted with roll pillows at the ends, be most attractive as well as serviceable.

There is an unlimited number of chair designs from which one may choose. Those shown here are quite good-looking and have none of the clumsiness about the bottom that frequently make these articles seem all legs. The familiar hour glass chairs are also very satisfying but all of these must be properly cushioned if their full effectiveness is to be realized.

Ordinarily, lamps of wicker or bamboo are satisfactory only as porch decorations, but there are some very good ones, notably those that combine other materials with this weave, that may be used with excellent effect anywhere. It may be a combination of wicker base with a paper shade, a glazed pottery bowl with a bamboo shade, or one like the one shown here, with a simulated bamboo base and vellum shade. All of these fit in nicely with wicker furniture and those settings with which this weave is in harmony.

One seldom finds such a comfortable writing desk as this one of wicker, selling with stool at $41.00, Stand $15.00, cage $11.00

There is an unusual wicker lamp intended for the dressing table that is quite goodlooking and useful, though very difficult to explain. Perhaps the best idea of it may be had by saying that it looks like a lamp whose shade had a very wide opening in the top filled with a dainty cretonne under glass, the whole shade seeming to stand on edge on the lamp standard which is about 15 inches tall. The cretonne covered opening is turned toward the mirror. This method directs the greater strength of the light against the face while the eyes are saved the blinding reflection through the softening influence of the cretonne. These lamps come in dark brown and green and sell at $5.

As has been said above, much of the success of furnishing with wicker depends on its proper cushioning. Generally speaking, it is better to use only the seat cushion for wicker chairs. Upholstery on either their arms or backs seems peculiarly inappropriate. A pillow for the back to match the seat cushion is much better looking and, because it is adjustable, infinitely more comfortable. It might be well to say, too, that these pads or cushions seem much more fitting when they are covered with material having very small designs, the conventionalized all over floral and scroll patterns being by far the best. Such patterns make the cushions seem a part of the chair which is, of course, the point that proves their correctness.

Not often does one find in metal a lamp so graceful and goodlooking as this one in verde antique

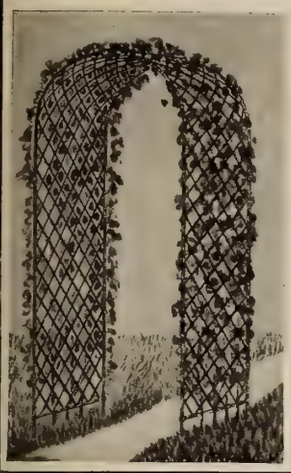
The double seat, pictured here, would look much better if the seat had a three or four inch upholstered cushion, with one or two pillows standing against the back.

The smaller chair does not absolutely require another cushion, but it would be improved if there were a smaller pillow, possibly a round one, against the back. Whatever the pattern, only chintzes or printed linen are satisfactory. Under all conditions one must be careful not to use too much of this furniture, however interesting, else the room will be cold and too light weight in effect. By contrasting it with articles of other materials its effect will be strengthened as indeed will be the whole decorative plan—a point worth remembering when doing bedrooms.

Nothing more is needed here to further perfect contentment except perhaps a small pillow, a footstool and a book

A flat upholstered pad with two or three pillows for the back will make this seat complete

Rose Arches



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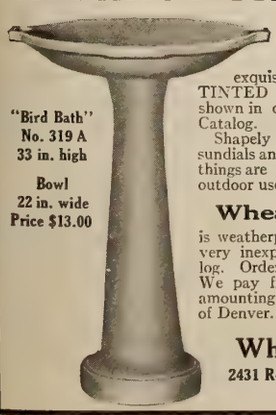

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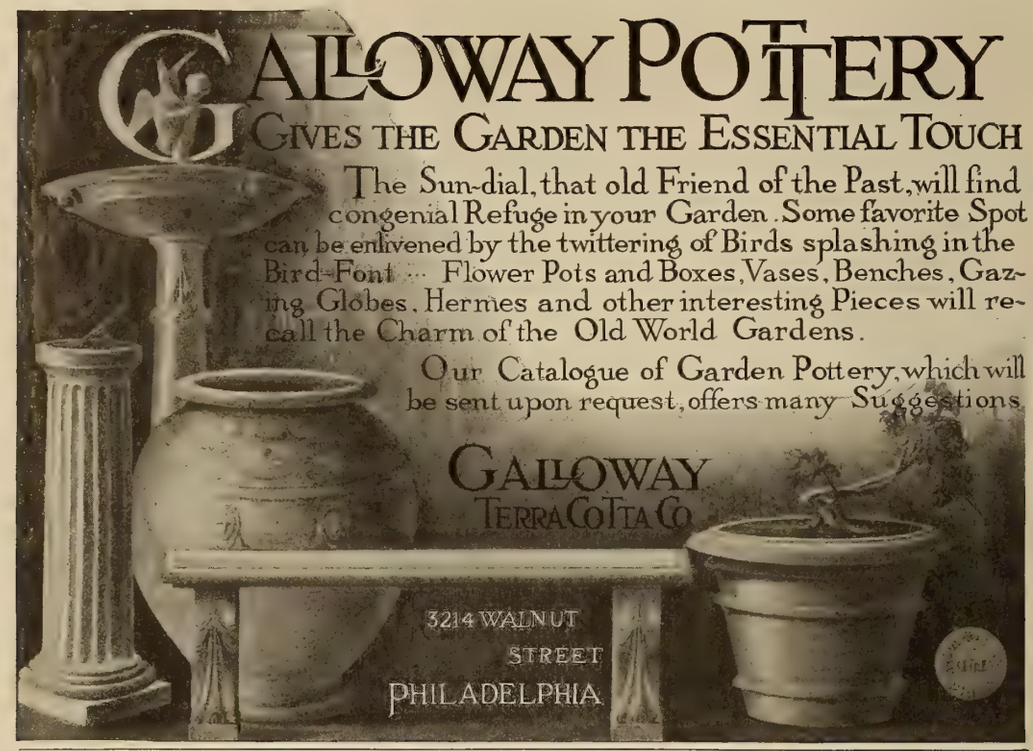

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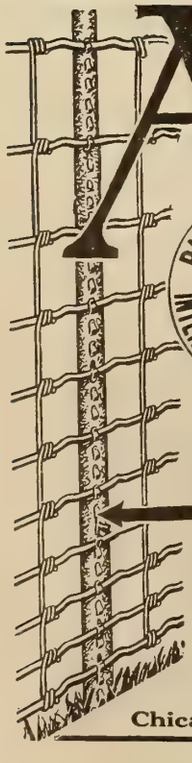

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There are many ways to do this satisfactorily. One need not wait for blossom time, for many beautiful arrangements can be made of leaves and the stalky greens of early spring. Excellent effects may be gotten by new groupings of the winter plants, taking care, to prune and freshen them. The wicker table basket shown here would be ideal for such an arrangement as well as for the delicate spring blossoms that would follow.

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Not less interesting is the flat dish of black glass pictured above. This is as satisfactory for friendly spring flowers as for the more formal blossoms of winter and it also comes in dark blue with stem vases to match.

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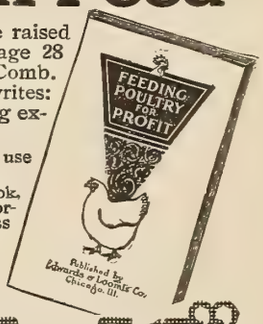

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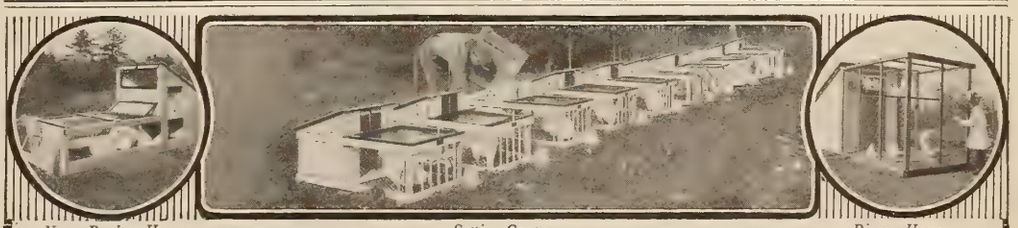

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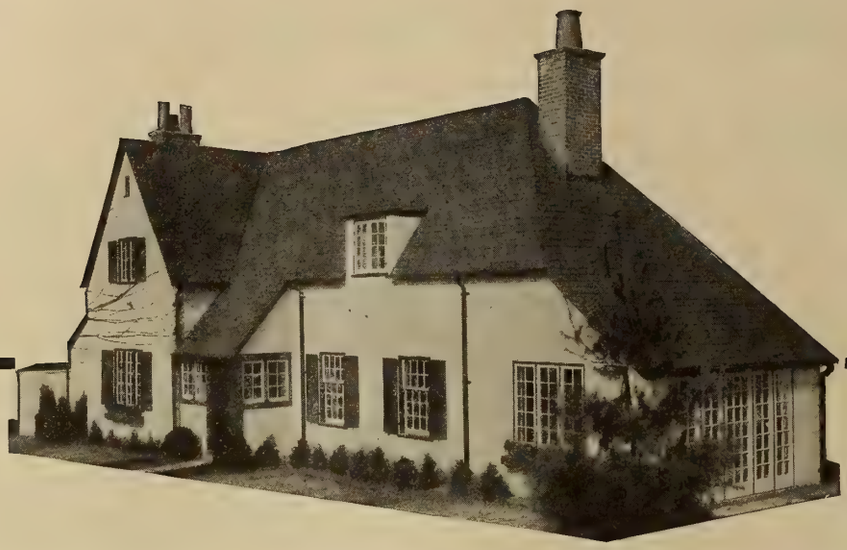

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12 Forthcoming Numbers

March: **Spring Gardening Guide.** When to plant—vines and their use—insect pests and their problems—paths—new houses.

April: **Spring Building Number.** Architecture for the vacation home—water supply—new gardens—the sewage problem.

May: **Summer Furnishing Number** Summer curtains and rugs—rattan and willow—the young girl's room—cool color schemes.

June: **Garden Furnishing Number.** Living out of doors—the pergola and garden pottery—flower boxes—pools and statuary.

July: **Small House Number.** Twenty inexpensive houses—economies in fireproof houses—evergreens—the remodeled farm house.

August: **Motor Number.** The automobile at home on a farm—garages—motors in suburban life—community improvement.

Sept.: **Autumn Furnishing Number** New decoration tendencies—bath rooms—the man's room—furniture grouping which is distinctive.

October: **Fall Planting Guide.** Directions for planting—bulbs and shrubs—plant storing—trees and their care—the greenhouse.

November: **House Planning Number** How to read plans—selection of hardware—new moderate priced homes—the architect's client.

December: **Christmas Gift Number** 200 suggestions for gifts for the home—the music room a holiday Godsend—how to hang pictures.

January: **Annual Building Number** The American home an institution—tabulated costs of building—mission of artistic brick work.

February: **Garden Planning Number** Making the plan—the selection of seeds—color schemes, successful grouping and landscaping.

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(CELOSIA CHILDSI)

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The Woolflower has been exhibited at many flower shows and never failed to create a sensation, and has received many certificates of merit, including one from the N. Y. Florists' Club.

Seed, 10 cts. per pkt., 3 pkts. for 25 cts., together with New Trailing Petunia and Annual Sweet William (fine novelties) and Catalogue, free

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Here are 5 of the most popular Gladioli Childsi for only 15c. 5 collections for 60c.
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Every sort in this collection stands high among the **very finest sorts of to-day.** The 5 for 25c.
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America—pink; **Augusta**—white; **Brenchleyensis**—scarlet; **Ceres**—white: **Mrs. King**—red; **Mad. Monneret**—pink.

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Finest sorts mixed, 50c per doz., $3.00 per 100.

New Dahlias

10 splendid sorts named, for $1.00.

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10 extra fine sorts (mostly new), named, for 60c.

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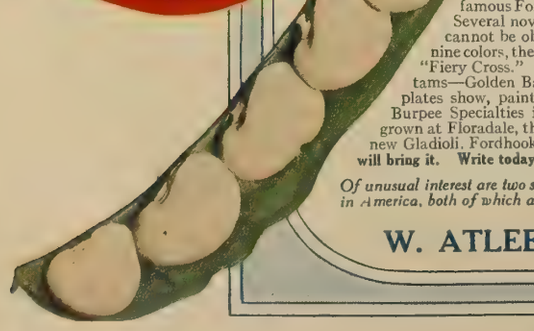

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"The Leading American Seed Catalog" for 1916

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E. H. Wilson, "Lilacs"

SPRING PLANTING ANNUAL

A Shakespeare Garden

THE GARDEN MAGAZINE

APRIL Vol. XXIII. No. 3 15 Cents a Copy 1916

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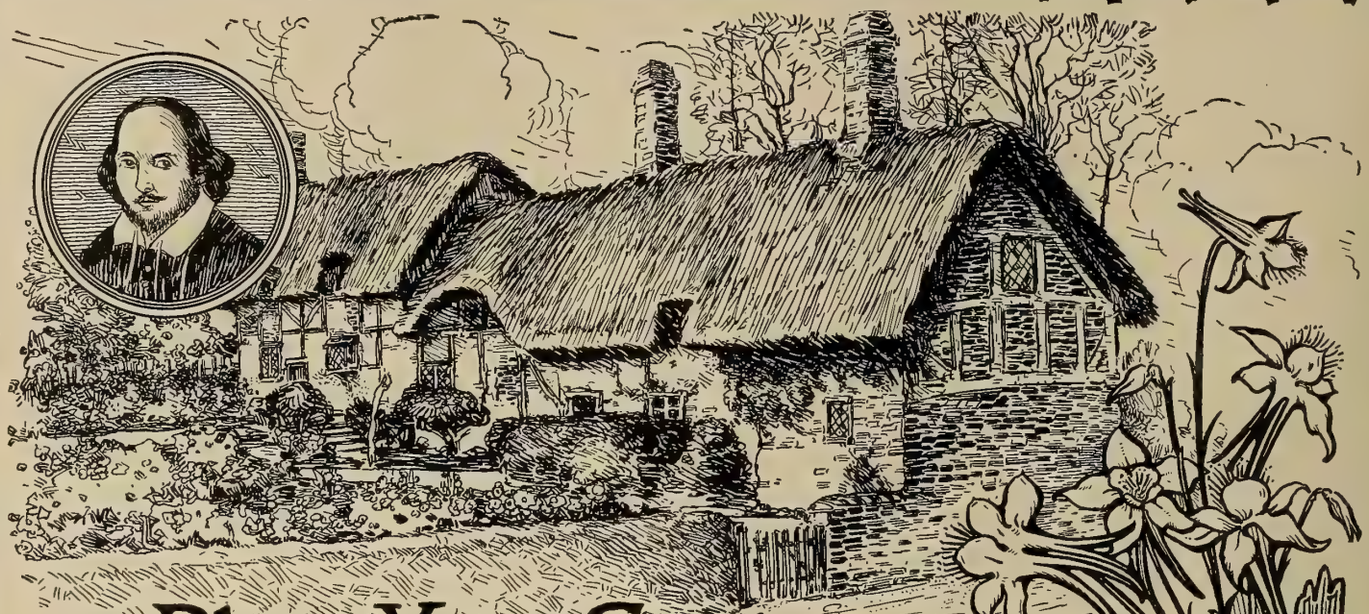

Plant Your Garden with the Flowers of Shakespeare

AROUND Ann Hathaway's cottage so 'tis said, the Columbine was abloom when Shakespeare went a-courting. The same Columbine it was, that grows so handsomely in our gardens today.

What more charming participation could you have, in the celebration of Shakespeare's tercentenary, than the planting in your garden, some of the sixty-four flowers which have been immortalized in his poems and plays?

Flowers of the gardens and waysides of rural Warwickshire, still to be found unsurpassed in their natural beauty and simplicity, as when Shakespeare sang of them so lovingly.

We happily have all f the following particularly interesting ones:

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Fennel
Flax
Flower de Leuce
Hawthorn
Honeysuckle
Hyssop
Iris (blue)
Larks' Heels or Delphinium
Lavendar
Lily (Madonna)
Mallow
Marjoram
Pansy
Pinks
Peony
Poppy
Primrose
Roses (cultivated)
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Violets
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Select those of your choice and let us know the quantity of each you want; and we will send you the price, along with our catalog describing each. Or if you wish us to select a collection of say 25 plants, 5 each of 5 varieties, we will give you a special price.

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$36 for 6. 6 ft. Specimens

THIS collection contains six different kinds of the more desirable evergreens, especially adapted for screening use. They are, every one, specimen trees, full branched and with an abundance of roots. They ought to grow rapidly for you. Let us know if you want a list of the varieties. Our expert says no one can beat them for quality, and they are hard to duplicate in price. He ought to know.

Shade Tree Offer

$9.50 for 6. 2 each of 3 kinds

ANYONE who knows shade trees will say you can't go wrong on these.

	Diameter	*Height*
Norway Maple	1½-2 inches	11-12 feet
Silver Maple	2-2½ inches	12-14 feet
European Mountain Ash	2 inches	9-10 feet

6 of any one kind for the same price.

Our complete catalog of trees, shrubs and flowers, you are most certainly welcome to. Shakespeare's flowers and Rock Garden Plants are all to be found in it

Julius Roehrs Co

Box 10, Rutherford N.J.

Beautify Your Garden with Farquhar's Hardy Perennials

We grow annually thousands of these attractive plants and our collection is one of the largest and most complete in the country.

Some of Our Specialties:

	Per Dozen		Per Dozen
Canterbury Bells	$1.50	Larkspurs . . .	$2.00
German Irises .	1.50	New Hardy Asters	3.00
Hollyhocks . .	2.00	Phloxes . . .	1.75

Write for a copy of our Garden Annual for 1916 containing full list of varieties

R. & J. FARQUHAR & COMPANY

9 South Market Street BOSTON, MASS.

Red Flowering Dogwood

(*Cornus florida var. rubra*)

You will surely want one, a few or many of this lovely native dogwood if you have ever seen it in blossom.

Prices, Red Flowering (Rubra)

1-2 ft. each	$ .50	per ten $ 4.00	per hundred $ 35.00
2-3 ft. "	1.00	" " 9.00	" " 80.00
3-4 ft. "	1.50	" " 12.50	" " 100.00
4-5 ft. "	2.50	" " 20.00	" " 175.00

Specimens 5 to 8 feet, $3.00 to $15.00 each

Prices, White Flowering

1-2 ft. each	$ .35	per ten $2.50	per hundred $15.00
2-3 ft. "	.50	" " 4.00	" " 30.00
3-4 ft. "	.75	" " 6.00	" " 50.00
4-5 ft. "	1.00	" " 9.00	" " 80.00

Specimens 5 to 8 feet, $3.00 to $15.00 each

Both the Red and White Dogwood are hardy from Florida to Maine. Beautiful every day of the year, wonderful during the blooming season. Brilliant coloring of leaf and berries in the Fall. Graceful along drive or woodland and attractive as a lawn specimen.

Let Us Book Your Order Now and reserve the stock for a future shipping date. Other **Send for Our Catalogue** good things in this catalogue are Tree Andromeda, Cercidiphyllum, Japan Yew, American Hemlock, Japan Barberry, Rhododendrons, Roses, Iris, Peonies, Phlox, Larkspur and Hollyhocks.

THE ELM CITY NURSERY COMPANY

Woodmont Nurseries, Inc.

NEW HAVEN (*Near Yale Bowl*) CONN.

Truth and Trade

By Bishop Warren A. Candler, Chancellor of Emory University, Atlanta

WHEN a seller and a buyer have made a trade, based on truth, both have obtained a benefit, and the community to which they belong has been benefited insofar as their interests affect the welfare of the community. Each has parted with that which the other needed, and in turn has obtained from his fellow-man what he himself needed. Honest exchanges, therefore, enhance values.

But trades based on untruth damage all concerned. They approach dangerously near to theft.

By advertising, buyers and sellers are brought together, and truthful advertising promotes the welfare of the commercial world; it is, in fact, a part of the wealth-producing forces of the world. But untruthful advertising is a fraud and the fosterer of fraud. It partakes of the nature of the crime of getting money, or goods, under false pretenses. The medium of advertising, whatever its nature, which lends its columns to such advertising, accepts a bribe to become accessory to the same crime.

It is a far-reaching reform proposed by the Associated Advertising Clubs of the World in the motto "Truth". Such a sentiment must act like a health-laden current on the trade winds. Its influence will extend far beyond the limits of advertising, and stimulate honesty in all the processes and transactions of commerce.

The patron saints of the commercial world ought not to be Ananias and Sapphira. Lying spirits cannot guide safely the merchantmen of the world. The argosies of trade must sail by the pole-star of truth. Otherwise they will be wrecked.

This is one of a series to Advertise Advertising, by the Associated Advertising Clubs of the World (headquarters, Indianapolis). Write for interesting booklet, written for buyers like yourself.

Drawing by Chas. Daniel Frey Co., Chicago. Plate by Mound City Eng. Co., St. Louis

YOU can grow anything you want with the certainty of success—earlier, sturdier and more satisfactory—if you use the "GROQUIK" forcer NOW. Made of glass with two wire supports. Wonderfully simple—and efficient. Saves frames, saves transplanting. Samples 15 cents. Pamphlet free.

The "ALPINE" Forcer

is the "GROQUIK" adapted for special use in the rock garden. Scientifically constructed. Strong, practical and efficient. Perfectly ventilated. 50 cents each, $5.00 a dozen.

Consult us on your gardening problems.

THE CLOCHE COMPANY
131 Hudson St. Dept. M New York

"The Triumph of Surgery

to-day, like the greatest triumph of medicine, lies in finding ways for avoiding surgery."

Dr. Robert T. Morris in

"Doctors vs. Folks"

(To-Morrow's Topics Series)

A doctor's confession of faith. Full of humor, robust wisdom and a broad, jolly outlook on life.

In the Same Series

Microbes and Men
A Surgeon's Philosophy

Each, Net, $2.00. Send for circular

Ask your Bookseller to show them to you

Doubleday, Page & Company
Garden City New York

The "Handy Success" Sprayer and a few hours time will work wonders for your garden

BETTER FLOWERS—BETTER FRUIT

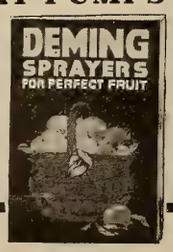
Don't give time and trouble to make your garden a beauty spot and neglect to protect it against its worst enemies.

DEMING SPRAY PUMPS

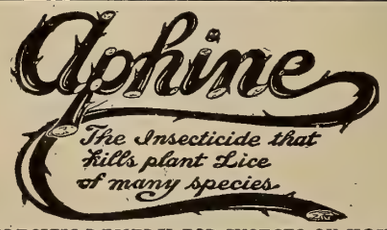
used with the inexpensive materials described in our "Spraying Guide" are *garden insurance.*

In writing for catalog ask for the "Guide" also—both are free to you on request.

THE DEMING CO.
234 Depot Street Salem, Ohio



32-PAGE BOOK FREE



A SPECIFIC REMEDY FOR INSECTS ON HOUSE AND GARDEN PLANTS—EFFECTIVE IN ITS ACTION—EASILY APPLIED—FREE OF THE DISAGREEABLE FEATURES OF MOST INSECTICIDES.

Sold by dealers in Horticultural Supplies

Aphine Manufacturing Co. Madison, N. J.

THE MEDAL OF HONOR

was awarded to

"ELIZABETH DENNISON" HELIOTROPE

at the

PANAMA-PACIFIC EXPOSITION

This is a wonderful variety, and we have plants ready for immediate or spring delivery, just as you wish, at 30c per plant; $3.00 per dozen.

SALVIA "AMERICA"

A new ever-blooming Salvia, flowering continuously the year 'round. 30c per plant; $3.00 per dozen.

BUDDLEIA "ASIATICA" or "The Butterfly Plant"

Pure white, flowering in January. 15c per plant; $1.25 per dozen.

CHRYSANTHEMUMS

FOR THE GARDEN

You do not need a greenhouse to enjoy the beauties of the "Queen of Autumn." We can give you a choice of over

ONE HUNDRED VARIETIES

that will bloom in the garden; in the wonderful new EARLY FLOWERING: SINGLE and POMPON types that are now available for the grower.

Where the purchaser mentions the choice of color and the selection is left to us, we will give you fifty plants in ten varieties for FIVE DOLLARS, and you will find this the best investment ever made for your fall flowering borders.

"MRS. FRANCIS H. BERGEN"

The fine hardy white, described in *The Garden Magazine* last fall; is now ready for distribution: Price: 50c per plant; $5.00 per dozen.

DICKSON'S NOVELTY ROSES FOR 1916

NELLIE PARKER PRINCE CHARMING ULSTER GEM CLEVELAND GORGEOUS

Write for catalogue and read about these fine new Roses and many other Novelties; if you are specially interested in Gardening

CHARLES H. TOTTY MADISON, NEW JERSEY

The advertising pages of *The Garden Magazine* are as interesting as the text. The text pages tell you how to do things, when to do things and with what — the advertising pages tell you where to buy these things.

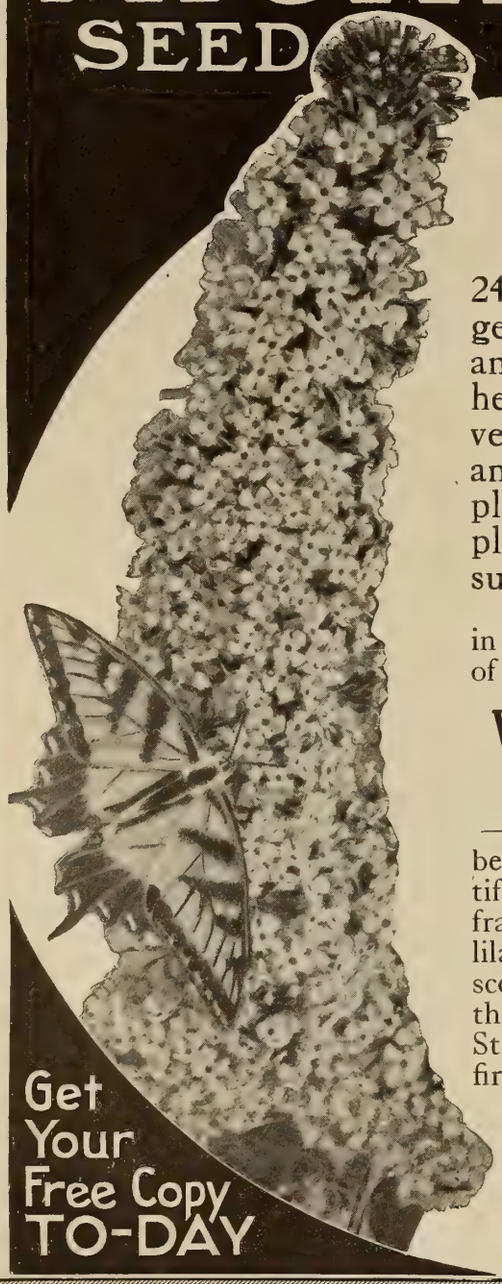
How can we better serve you in these advertising pages?

We welcome suggestions from our readers as to offerings they desire to have placed before them and will as well welcome constructive criticism of the advertising as it now appears. If you have a suggestion be so kind as to let us have it. We will thank you.

The advertiser who uses these pages has confidence in *The Garden Magazine's* business-producing power and the only way he has of knowing that the advertising in these pages interests you is by your mentioning *The Garden Magazine* in your response.

—*The Ad Man.*

MICHELL'S SEED BOOK



free on request

A complete garden guide of 240 pages—full of helpful suggestions—on *what*—*when*—and *how* to plant. A reliable help to success with flowers, vegetables, hardy perennials, annuals, vines, shrubbery and plants in general. Includes plants, seeds, bulbs, garden sundries and implements.

Hundreds of illustrations, many in natural colors. Full description of the

Wonderful Everblooming Butterfly Bush

—the perfectly hardy shrub which bears every year a wealth of beautiful claret-colored flowers, of rare fragrance—like the blending of lilac and heliotrope. A single plant scents a whole garden—drawing the butterflies from all around. Strong plants which will bloom first season, 25c. (postpaid 30c.); $2.50 per dozen (by express, not prepaid).

Get Your Free Copy TO-DAY

Henry F. Michell Co.
520 Market St., Philadelphia, Pa.

RHODODENDRONS

Planted Now Will Bloom This Year

HICKS' hardy rhododendrons are as *easily grown* as lilacs.
Guaranteed to bloom this year if planted *now* according to our easy instructions.
Our magnificent stock of these most beautiful of flowering evergreen shrubs includes all "clear colors." An unusually large selection at moderate prices.
Free booklet, "Flowers and Shrubs," will tell you how to grow rhododendrons and other hardy flowers.

HICKS NURSERIES
Shrubs, Hardy Plants, Trees
Dept. M Westbury, Long Island

Thorburn's

GARDEN SEEDS

IF you want your garden to be a real success this year year (and of course you do) send for our big spring catalog. The "collections" of flowers and vegetable seeds on pages 11 and 12, ranging in price from $1.00 upwards, will specially interest you.

Write today. A postal addressed to us will bring it: Free

J. M. THORBURN & CO.
Established 1802
53B Barclay St., through to 54 Park Place, New York

Bulbs and the War

IT HAS been rather interesting to notice, during the last year and a half, in the various gardening papers and magazines, the part that bulbs have played in the war.

First of all, shortly after the war broke out, there was great excitement as to the possible shortage, loss of rare varieties, etc. Many set to work to plant their small bulbs, those they would have thrown away in ordinary times, thinking to keep a good stock of favorite kinds. In this country instead of a shortage, the reverse has been the case. One had planted the small bulbs early, because it was the right thing to do, and then later the market was flooded with splendid bulbs at very reasonable prices and one wished for the room those small fellows were taking up! We have profited by other people's inability to use or purchase varieties that were not offered to us heretofore. A better quality seems to have been sent us in the cheaper bulbs, and the choice has been far larger and the very large shipments have kept the prices fairly low. Anent the low prices, the Dutch growers at one time sent out "frenzied appeals" to the British public asking them to buy of their wares, saying they were in a very bad way and needed support. But fortunately the trade did not suffer to any extent, the failures were about the same as in a normal year, and the growers seemed to be making a good living. On the other hand, after investigating the situation, the British growers proved that their Dutch competitors were trying to work upon the feelings of the British public and showed that the reliable Dutch firms made no claim to be suffering. Many people pointed out that as quantities of bulbs were grown in Great Britain and Ireland, purchases should be made at home. Of course the usual objection was raised, that British grown bulbs "were not half so good." However, this has been pretty fairly disproved by the experience of those that did buy at home. Meanwhile, Americans profited again in that both the British and Dutch growers tried to enlarge their fields of operation by sending more catalogues to this country and showing more interest in gardeners here.

Surely we all sincerely hope that the war will not curtail our supply of Tulip bulbs

Another innovation, a result of this controversy, is the Show to be held on August 1st next by the Royal Horticultural Society "to demonstrate the excellence to which such bulbs can be grown in Great Britain and Ireland." The idea, I believe, came originally from the Rev. Joseph Jacob. Appeals came from the war-zone for bulbs to make gay the ground of hospitals and convalescent homes and were well responded to. Recently there has again been a rumor that the Dutch were using tulip bulbs to make flour. It may be so, but there has never been anything to show that such flour was pleasant to the taste.

New York. Ethel A. S. Peckham.

A Free Service to Property Owners Who Wish to Sell or Rent

If you have a country, suburban or seashore home you wish to sell or rent, list it without delay, in our Real Estate Directory File. All that is necessary for you to do is to send a complete description, state price, terms, etc. There is no charge for this listing —not even in the event of a sale or rental.

We do not act as real estate brokers nor negotiate sales in our office—we simply co-operate with owners desirous of selling and renting, to reach prospective purchasers, by placing the owner in touch with the buyer and vice versa. Send your description to

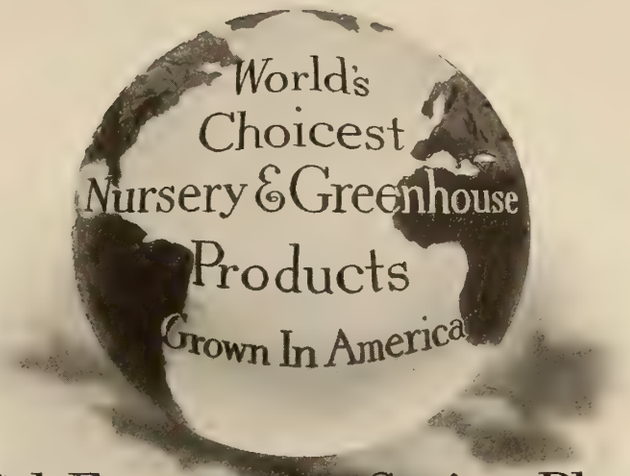
Manager Real Estate Department, Country Life in America

The National Real Estate Medium

Garden City, L. I. 11 W. 32nd St. N. Y.

Bobbink & Atkins

Nurserymen - Florists - Planters



Special Features for Spring Planting

Roses
Flowering Shrubs
Hardy Old-fashioned Flowers
Rhododendrons
Vines
Shade Trees
Evergreens—Climbers
Fruit Trees
Our Giant Flowering Marshmallow
and 150 other specialties

300 Acres of Nursery. 500,000 Feet Under Glass. We Plan and Plant Grounds and Gardens Everywhere. Visit Our Nursery—Only 8 Miles from New York, or Write for Our Illustrated Catalogue No. 25

RUTHERFORD, NEW JERSEY

If You Buy Your Gladiolus Bulbs of Kirchhoff

You will have the latest and best varieties at prices below those offered you by other growers. Growing Gladioli is his specialty, that is the reason he is able to do it. To become acquainted with you, he will sell at the following prices, charges prepaid: Baron Hulot, deep purple, 50 cents a doz. $3.00 a 100. Europa, purest white, $1.25 a doz. $6.00 a 100. Pink Perfection, finest pink, $1.25 a doz. $7.00 a 100. War, blood red in color, best in its class, $1.50 a doz. $10.00 a 100. Scwaben best Sulphur yellow, $1.50 a doz. $10.00 a 100. —*Blooming size Bulbs.* 25 Bulbs of a variety sold at the 100 rate. The following discounts will be allowed: 5 per cent on orders of $5.00 and over. 10 per cent on orders of $10.00 and over.

Don't delay. Order today

ARTHUR A. KIRCHHOFF, *Gladiolus Specialist*
128 Park Ave. Batavia, N. Y.

DAHLIAS

STRONG FIELD ROOTS

My carefully selected collection of over two hundred distinct varieties of the Dahlia comprises some of the most wonderful creations to date.

For profusion of bloom, quality and size of flowers, my Dahlias are unsurpassed. I have exercised a great deal of care and patience in my endeavor to obtain these results, and I have been successful. A trial order will convince.

WRITE FOR 1916 CATALOG—FREE

W. L. HOWLETT, Grower

208 Thirty-second Street Norfolk, Virginia

Royal Evergreens

For Round-the-Year Beauty

ROSEBAYS, Kalmias, Azaleas, Hollies, Leucothoes, Carolina Hemlocks and many other royal materials for garden making are described in our new booklet of this name. The younger nurseries sometimes attain full growth by giving larger values. Sample box of twelve 6-12 inch plants by mail for $1. Larger sizes by express carefully burlapped.

ROSEBAY NURSERY, Garden City, N. C.

Some Worth While Helping Hand Planting Helps

OF COURSE, if we could sit down with you and have an unhurried talk about just what you particularly want in Hardy Flowers, Shrubs or Trees, then what an easy matter it would be to make suggestions and tell you exactly what the cost would be.

Or if you would come to the Nursery and go about with us, and pick out just what you want.

But if neither of us can do either of these things, then the next best way to help you most, is to assume certain needs that mayhap may happen to be just your needs; and right here suggest ways to meet them.

If any of these do not cover your requirements, then be so good as to write us, and we will gladly make further suggestions. Everything offered here is absolutely high grade stock. Complete descriptive list of any collections sent on request.

Happy Home Selections

Number 1. 5 Items for $35

THIS is for a lot 50 feet wide. 2 Norway Maples 12′ to 14′ high, 1¾″ to 2″ Caliper. For street front walk. Ample hardy privet for 100 foot hedge across front and part down sides. 1 American Linden, 10 feet high, to shade house. 50 assorted Shrubs for planting around foundations and hedge corners. 5 Vines for the porch.

Number 2. 10 Items for $60

FOR a lot with 100 feet frontage. 3 Norway Maples for the Street front 12′ to 14′ high and 1¾″ to 2″ in Caliper. Enough Japanese Barberry for hedge across front, 2 Pines, 5 feet high, for entrance sentinels, 50 Assorted Shrubs for foundation and stoop step planting. 20 tall Shrubs for boundary planting. 1 Linden Tree, 10 feet high. 1 Horse Chestnut Tree, 8 feet high. 5 Lombary Poplars for quick growing screen to shut out neighbors, back yard or as laundry line screen. 25 Hardy Flowers, 5 each of 5 varieties. 5 Clematis Vines for the stoop. 5 Lilac Bushes for the back yard.

Driveway Planting

5 Items for $70

WE WILL suppose the part of your drive most needing planting, is 100 feet long. For archway trees nothing can equal Elms. You will need 5 with 8 fine, 5 foot, quick growing Pines for planting

between. At least 100 shrubs of varying sizes and kinds and 10 Rhododendrons to intersperse near the house. 50 plants of 5 kinds of Iris to plant in clusters, here and there.

Winter Cheer Planting

15 Shrubs for $5

WHEN winds are cold and the ground is covered with snow, you will get a good bit of cheer from seeing the red of the Barberries and Black Alder; and the red and yellow barks of the Osier and Dogwood. All of them fill an equally important place in their Summer clothes of greenery.

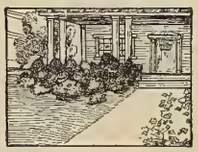
Cheerful Monday Screen

TO SCREEN from view the flapping wash on your neighbor's Monday line, or to shield your own from view, Lombardy Poplars are the quickest to grow. We have splendid specimens 8 to 10 feet high. 5 cost $4—10 cost $7. For an all year round screen, dense, symmetrical, Pyramidal Arbor Vitae is the thing but their growth is somewhat slow. 10 Trees 6 feet high, cost $25.

Snug-Up Porch Planting

10 Shrubs for $4

TO TAKE that Daddy-Long-Legs look from your stoop and steps; plant varying sized Shrubs against the foundations and in the step corner. 10 of the good husky shrubs



we will send you for $4, should plant a space about 8 to 10 feet long, in triple row. 20 would cost $7, and 30 $9. The assortment contains only the desirable varieties.

Trowel and Sunbonnet Collection

40 Plants for $5
4 each of 10 kinds

THESE are the delightful old timey Hardy Flowers that we associate so lovingly with our grandmothers.

Happily for us all they are very much in fashion these days.

Or 100 Plants for $10
10 Plants of 10 kinds

The prices given are in all cases for the goods carefully packed and delivered to the carriers. State whether you wish the goods shipped freight or express.

If you would care to send us a rough sketch of your grounds, showing boundaries and location of your buildings, we will gladly suggest a planting best suited to its particular needs.

Framingham Nurseries
W. B. WHITTIER & CO. - FRAMINGHAM, MASS.

Bees for the Fruit Grower

TO THE fruit grower, bees are an almost indispensable adjunct to the garden. The Northern Spy, among other apple varieties, needs pollenizing, and among the pears the Anjou, one of the grandest of all, is quite dependent upon the bees. In the vineyard the Brighton grape will be almost barren if left alone, while the Herbert and Lindley are nearly as helpless. Plant good pollenizers together with poor, and the bees will do the rest. All berries need the bees.

When laying out a garden in Clinton, N. Y., I planted a basswood grove near the centre of the fruit garden, and I did it specifically for the bees. I wanted these basswoods to become blossoming trees by the time that my fruit trees had begun to bear; with the intent that they should furnish a large part of the honey, while the hives were as close as possible to the raspberry garden and to the vineyard, as well as to the pear orchard and apple orchard. The result was very favorable, not only for the amount of honey that was secured, but for the coöperation of the bees at times unfavorable for fruit blossoms to pollenize.

Start with at least two or three hives. In the course of five years, or while a young orchard is growing and the vineyard coming to bearing, these ought to multiply into ten. A fruit farm of fifteen acres does not need more than twenty hives, and less than that will serve fairly well. I am accustomed to taking up from six to eight hundred pounds of honey from a dozen hives, and were I a skilled apiarist I believe I could double the quantity. But in estimating the income from a small fruit farm, we have to take into account, not a maximum yield at one point, but a thoroughly good yield all around. When we add two or three hundred dollars worth, or half that to the raspberries and currants and pears and plums and cherries and apples, we are doing very well indeed.

For special bee feed there is nothing better than this general fruit gardening; but by all means add to it a plenty of basswood trees, and on the lawn there might well be planted a few mountain ash, which is kin to the apple. The basswood, however, is the one great bee tree of America. It is not only a beautiful shade tree for the lawn, but in June the bees will work all day and every day in its delicious flowers.

Provisions are easily obtained for handling bees with safety—shields for the head and gloves for the hands and arms—but go to work very quietly and with a decision that does not fret the swarm. It will generally hold on for an hour or two after lighting; but if disturbed is liable to go back to the hive, and on its second start, will sometimes drive straight for its selected home in the woods.

Be always ready to secure the earliest swarms. These are likely to appear during the latter half of May, but a June swarm is in time for summer work. If you double up the late swarms you can make strong colonies of them, able to go through the winter and start out in the spring for good work.

Be sure that your hive is thoroughly clean, and no smell of moths about it. Scrape it with an old knife, and have it opened to the sun for several days before using. Three or four hives should always be ready ahead of time, for if one is rejected by a swarm another must be tried. The bee is a tidy housekeeper, and would rather go to the woods and live in a hollow tree than stay with you in a musty hive.

The winter care of bees is a very simple matter, and one need rarely lose a hive. Before the cold weather sets in double up the weaker swarms, and if you have what are called chaff hives, put in the cushions, shut down the top, and your work is done. Care must be taken not to close the entrances during warm winter days. At the same time do not let the hives set where a warm sun may heat them, and start the bees out for untimely exercise. Still more important is it to have the hives out of severe winds, and by no means in damp or wet places. Feeding weak swarms, when for some reason the food supply is short, is a bit of experience that will come to any one. It greatly helps to put comb starters in your section boxes, to save the bees' time.

New York. E. P. Powell.

HIGH CLASS DAHLIAS

For High Class Gardens

YOU won't make any mistake by sending us your dahlia orders; neither will you make any mistake if you make out your list from our page advertisement on page 67, March Garden Magazine.

We described and quoted prices on over forty varieties, besides making five "Special Collection" offers of unusual merit. If you haven't read it, turn to your copy of last month's magazine or write us, and we will send you our catalogue with a copy of our advertisement.

We advise that you send your order at once for any and all the Peony Dahlias because the great demand for this type has always been in excess of the supply of roots. This season, when so many people are ordering early, prompt action is advisable on these offers. *Don't fail to include our famous Golden Gate Dahlia in your order.* This ideal Suffrage Dahlia was used in preference to yellow Chrysanthemums last Autumn by the Oyster Bay Suffragists for decorations. (See description of this wonderful Dahlia in our advertisement in the February issue of The Garden Magazine.) Price, *roots $.50 each.* All orders will be filled and shipped *prepaid* in rotation, during April.

WRITE FOR OUR CATALOGUE

(Please mention Garden Magazine in writing)

LONG ISLAND DAHLIA GARDENS

HICKSVILLE, LONG ISLAND, N. Y.

SOME SCRIBNER BOOKS

Books by Harriet L. Keeler

Our Early Wild Flowers

Illustrated by Mary Keffer.
Color-plates by Eloise P. Luquer

A pocket volume exactly suited for the purposes of the botanist.

The Boston *Herald* says: "With Miss Keeler's little book, which is generously illustrated, in his pocket, the nature lover is well armed to appraise the floral charms of early spring."

Cloth, $1.00 net; Leather, $1.25 net.

Our Garden Flowers

"The author has cleverly grouped together the various families, and the reader will find within her pages all the information he may require well presented, and accompanied by excellent illustrations."
—Philadelphia *Ledger.*

Profusely Illustrated. $2.00 net.

Our Native Trees

And How to Identify Them

With 178 full-page plates from photographs and 128 text drawings. $2.00 net.

Our Northern Shrubs

And How to Identify Them

With 205 photographic plates and 35 pen-and-ink drawings. $2.00 net.

Books by Louise Shelton

Beautiful Gardens in America

The New York *Evening Post* says: "The book is one that every garden club will wish to own, and that every American woman possessed of a garden will pore over with delight and the resolve to adapt some of its many suggestions to her own bit of ground."

Illustrated with more than 170 photographs and with 6 full-page color reproductions. $5.00 net.

Continuous Bloom in America

When, Where, What to Plant
With Other Gardening Suggestions

"A manual that is invaluable to every lover of flowers."—Philadelphia *Ledger.*

Illustrated. $2.00 net.

By Mrs. Francis King

The Well Considered Garden

With a Preface by Gertrude Jekyll

The New York *Sun* says: To the whole race of flower gardeners, this book, with its fifty illuminating photographs, will bring boundless pleasure, and its study will yield rich return."

With 32 illustrations. $2.00 net.

CHARLES SCRIBNER'S SONS — BOOKS — SCRIBNER'S MAGAZINE — FIFTH AVENUE, NEW YORK

Planet Jr. Seed Drills, Wheel Hoes and Cultivators

Cut the Cost of Gardening

Whether you have a small dooryard "patch" for spare-time recreation or an extensive market-garden the greatest time- and money-savers are Planet Jr tools. They do three to six times the work; and do it quicker and better than the slow old-fashioned hand implements.

The product of the inventive genius of a practical farmer and manufacturer with the experience of half a century. Save their cost the first season and last a lifetime. Fully guaranteed.

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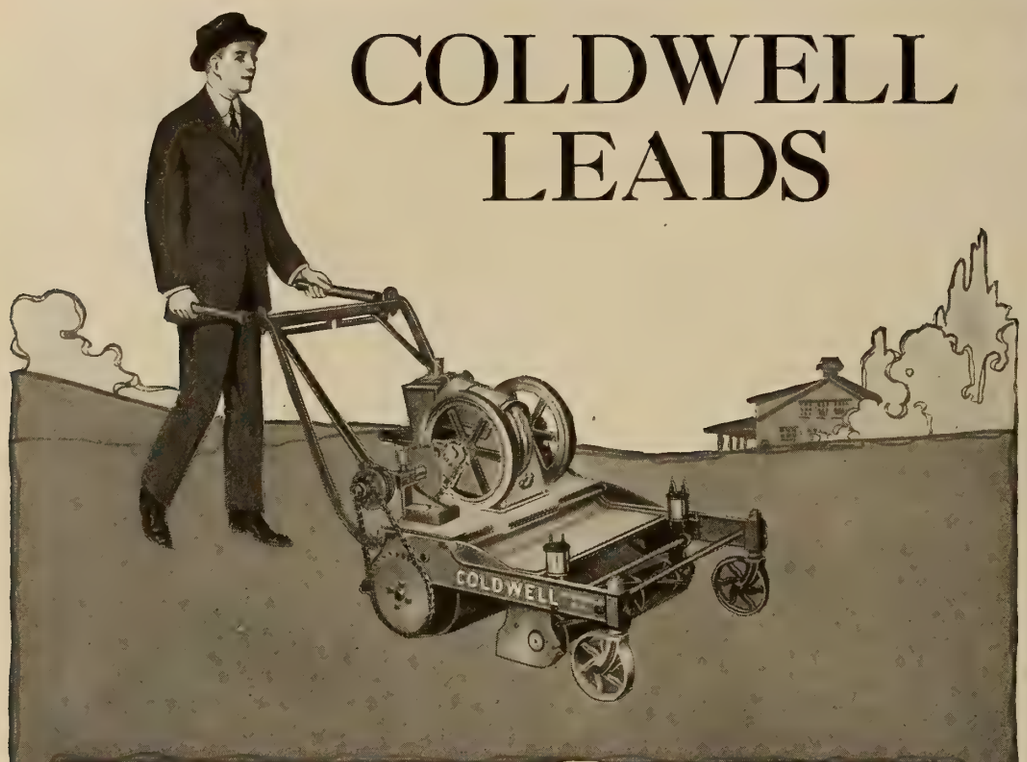

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Henry S. Dawson, Manager **Jamaica Plain, Massachusetts**

78-4

Alfalfa as a Lawn Grass

THERE are probably few rural home-builders in this state who realize that alfalfa is a most acceptable lawn grass. Where pressure water is not available, or where the time of the resident does not permit of the intensive watering and care necessary to most lawn mixtures, this useful plant will thrive and become a really great factor in beautifying the home grounds.

If irrigation or "ditch" water is available, as it is on most farms, the lawn may be sunken somewhat below the level of the walks and borders and then "flooded" if perfectly level, or contour irrigated if not. It may be treated to a thorough spraying once a month, or even left dry in regions where the rainfall is distributed through the year, and will thrive to a remarkable degree. If well cared for the first year so that it becomes thoroughly rooted, it will then withstand more abuse in this respect, while still making a creditable showing, than any

A well established alfalfa lawn will stand considerable abuse and still maintain a good appearance

plant I know of. When thoroughly sodded, alfalfa will allow of considerable tramping without noticeable signs of injury, so that a lawn of this legume makes a very suitable playground for children.

In planting an alfalfa lawn it is necessary to have a good seed-bed. The soil should be thoroughly spaded to a good depth and well pulverized. If stall manure is to be had it may well be worked into the soil a month or more before planting. If other clovers or related legumes are not indigenous treat the seed with some standard inoculation. The top soil should be raked smooth and the seed broadcasted on it at the rate of ten pounds to each 10,000 square feet. This can be worked in with the rake, the soil having been thoroughly wet before planting. It should not be wet again until the alfalfa has passed through its two-leaf or "seed-leaf" stage. It will be found that the roots penetrate downward faster and further than the tops reach upward.

When the grass is five or six inches high it should be cut with a lawn mower, setting the blades to cut as high as possible. Cutting at the right time is very important if a good lawn is to result. If the tops are allowed to develop beyond the control of a lawn mower the main stem of the plant becomes hard and woody and the soft, smooth surface, so desirable in a lawn, is forever lost. Then, too, when cut young and tender, the plants stool out laterally and form a perfect mat of soft, fragrant grass. The first few cuttings should be left on the ground as a mulch. When the tops become so heavy as to leave a conspicuous residue after the mower, they may be taken up in a grass catcher attached to the mower and removed to the barn lot, where they will be readily consumed by the horses or cattle, or even the pigs or chickens.

California. Burle Jones.

Shack? — Whad'ye mean — Shack?

A Southern Darkey calls a shelter of barrel staves a shack. Some of us designate palatial shooting lodges by the same term. Well, however that may be,

THE SPRING BUILDING NUMBER OF

Country Life in America

published May 1st tells us about shacks, bungalows and such things, inside and out.

Look over this menu and see if you can afford to miss the feast.

Bungalows and Shooting Lodges
A PHOTOGRAPHIC FANFARE

The Consistent Farm Group
By ALFRED M. GITHENS

The Fireplace for the Bungalow
By JOHN T. BOYD, JR.

Domestic Life at Mt. Vernon By PAUL WILSTACH

The Hillside Site By ARTHUR R. KELLY

Lime & Weeds, Inc. By H. W. COLLINGWOOD

"Close-Ups" of Early American Mantels
Photographs by FRANK COUSINS

A Typical Home of the Philadelphia Countryside
PERCY ASH, Architect

Log Cabin on the Walton Estate, St. Davids, Pa.
D. K. BOYD, Architect

Heard in the Locker Room By HERBERT REED

Roof Gutters and Downspouts
By BENJAMIN A. HOWES

Two Kings Among Trees By WILHELM MILLER

The New Dahlias By LEONARD BARRON

How Large Is a Profitable Farm?
By F. D. COBURN

The Return of the Manchester Terrier
By WALTER A. DYER

Which Calf Is the Best?
By E. L. D. SEYMOUR

The Lost Art of Raising Turkeys
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The Collector's Corner Cupboard
By WALTER A. DYER

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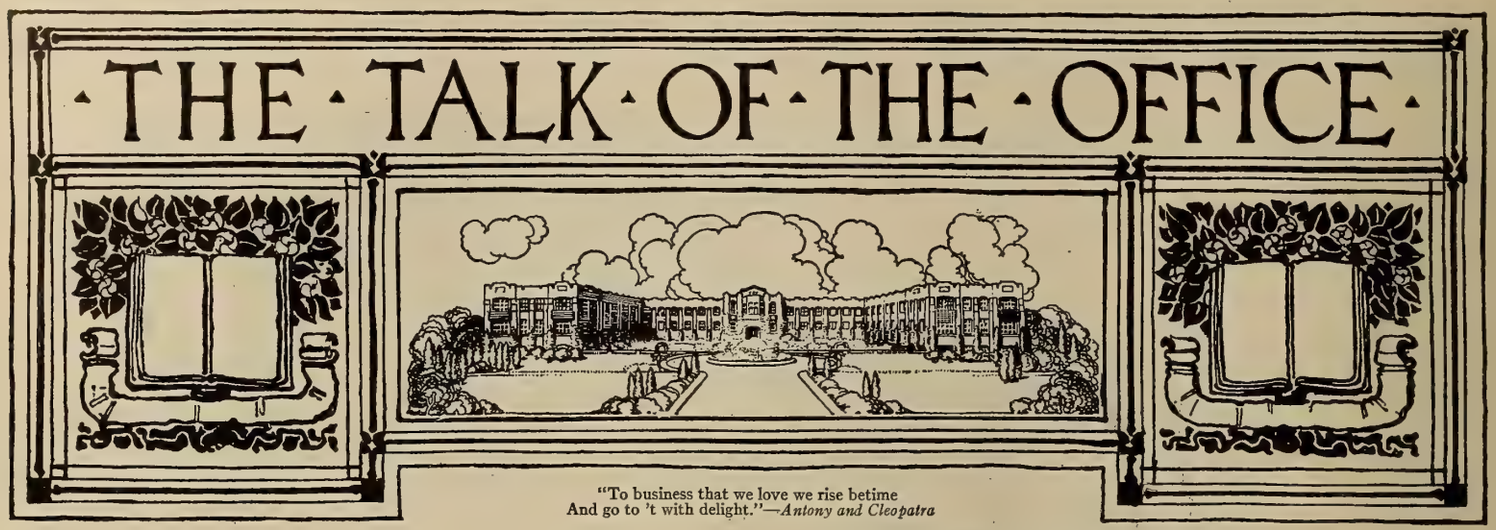
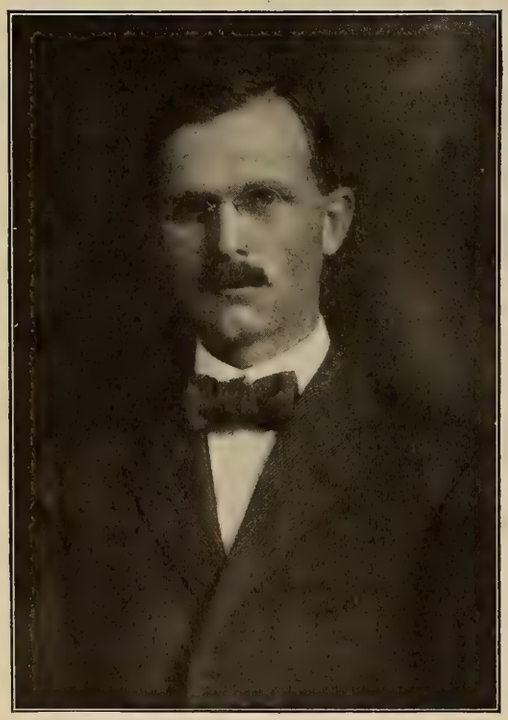


"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

A LONG MAINTAINED ANONYMITY



DAVID GRAYSON—RAY STANNARD BAKER

TO ALL but a very few of his closest literary intimates the disclosure of the name of the individual who for ten years has stood behind the *nom de plume* of David Grayson comes as a complete surprise. For the man of large affairs, the writer on sociological questions, the publicist living and working in the hurly burly of American life in all its intensity, seems very remote from the idler by purling brooks, the poet of the open road, the interpreter of that deeper contentment in life which may be had for the taking by the humblest or the highest.

David Grayson—Ray Stannard Baker. It seems a far cry, yet such is the fact, at last made public upon Mr. Baker's own permission because the complications of anonymity were becoming a tax upon the veracity of the bearer, and in some cases an embarrassment to others. Although we have long known Mr. Baker to be the author of the David Grayson books, the two names have always stood in our mind for two separate and distinct entities. To us David Grayson, the philosopher, has always been a homely and well loved symbol standing for all the deeper, the sweeter meanings of life; while Ray Baker, the keen, the incisive, the thinker has remained in our mind as the American with awakened conscience, sleeves rolled up, thick in the confusion of affairs.

We are glad that we now can share our acquaintance with the creator of David Grayson with the admirers of his books. Certainly the knowledge of the man should only lend a deeper meaning to the Graysonian philosophy, and for our part we hope he as David Grayson will go on and write many more books equally as delightful as "Hempfield," "Adventures in Contentment," etc. In making the announcement of the individual who is David Grayson the current issue of the *Bookman* says:

David Grayson, the author of "Adventures in Friendship," "Adventures in Contentment," "The Friendly Road," and "Hempfield," is in reality Mr. Ray Stannard Baker. Mr. Baker was born in Lansing, Mich., in April, 1870. He studied at the Michigan Agricultural College and later at the University of Michigan. For five years, from 1892 to 1897, he was connected with the Chicago *Record*. Then for a year he was managing editor of the *McClure Syndicate*, and afterward, for six years, he was associate editor of *McClure's Magazine*. Since 1906 he has been one of the editors of the *American Magazine*. Over his own name he has published "The Boy's Book of Inventions," "Our New Prosperity," "Seen in Germany," "The Second Boy's Book of Inventions," "Following the Colour Line," "New Ideals in Healing," and "The Spiritual Unrest."

For some time we have been urging Mr. Baker to allow us to use his name with the David Grayson books. (At last) . . . Mr. Baker capitulated "Both hands up!" he began. "I suppose it is absurd to try to maintain this 'secret' any longer. And it is indeed getting me into all sorts of complications and explanations. I had a letter from David Gray (he of "Gallops") the other day saying that people had been writing to him on the supposition that he was David Grayson and wanting to know what I'd do if he signed his stories Ray Stannard Bakerson! But make it as easy as you can." . . .

It is almost impossible to over-estimate the appeal that these David Grayson books have had in certain sections of the United States. The Graysonian philosophy has been accepted at its face value and as has already been recorded in the *Bookman*, in Florida there has come into existence a club known as The Graysonians.

A WOMAN'S SUCCESS

Miss Ellen Glasgow has turned some phrases at one time and another that have lived and woven themselves deep into our language. But of all the illuminating thoughts to which she has given expression this one seems to us to be one of the most complete and satisfying definitions of success.

Miss Glasgow was being interviewed by one of the newspaper people about her new novel, "Life and Gabriella" and she was asked by the interviewer what she regarded as the highest success for a woman. Her reply was:

"Success for a woman must be about the same as for a man—a harmonious adjustment to life. That means happiness, material success, a spiritual harmony with the facts of one's environment.

"The great thing in life is the development of character to the point where one is able to shape his own, or her own destiny. To be successful one must use the circumstances of life rather than be used by them."

How truly Miss Glasgow here defines her own Gabriella's success and her courage to go on in spite of the most dismaying obstacles and mould the circumstances of life rather than, like her Virginia, be broken by them.

FOR BOYS AND GIRLS

A constant comment from parents and others who buy books for children is the difficulty in finding books of the right sort for them. We do not always agree with this, for we think that the person who makes the bookstore perform its full function is pretty apt to find what he is looking for. However that may be, we feel that in this spring list we have books for both girls and boys that will please not only their juvenile readers but also will fulfill the requirements of the grownups upon whom the responsibility rests.

In Mr. Seton's new book "Wild Animal Ways" we have another animal book, the first from his pen in several years, not in any sense a juvenile other than that it will be a joy to youngsters of either sex from seven to seventy, just so long as they love animals. Then there is an out and out boy book, "Scouting with Kit Carson" by Everett T. Tomlinson who wrote "Scouting with Daniel Boone." For girls there is "Hollyhock House" by Marion Ames Taggart, author of "The Little Grey House" and "Daughters of the Little Grey House;" and "Mary Allen" by Eleanor Marvin.

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Giant Dwarf " Pkt, 10c, Oz. 25c, ¼ lb. 75c, lb. $2.00

Tom Thumb or Dwarf

Aurora. Salmon-rose.
Beauty. Light scarlet, mottled yellow.
Brilliant. Rich scarlet.
Chameleon. Various colors on one plant.
Crystal Palace Gem. Sulphur, maroon blotches.
Empress of India. Brilliant crimson, dark foliage.
King Theodore. Deep crimson-maroon, dark foliage.
King of Tom Thumbs. Dark scarlet, dark foliage.
Lady Bird. Orange-yellow, spotted red.
Luteum. Pure, light yellow.
Pearl. Pure white.
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Crimson. Rich and velvety.
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Scarlet. Glowing vermilion.
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containing complete description of the latest ***Novelties*** and ***Specialties*** in Flowers and Vegetables, as well as Standards, will be sent free upon request. Kindly mention Garden Magazine when writing.

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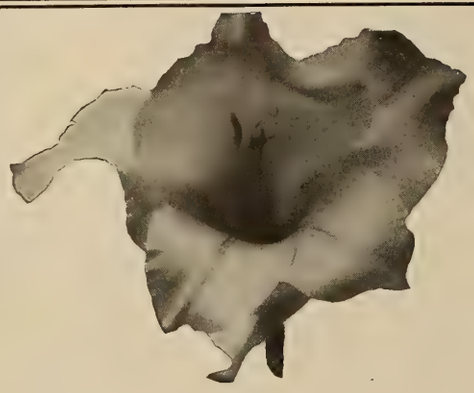

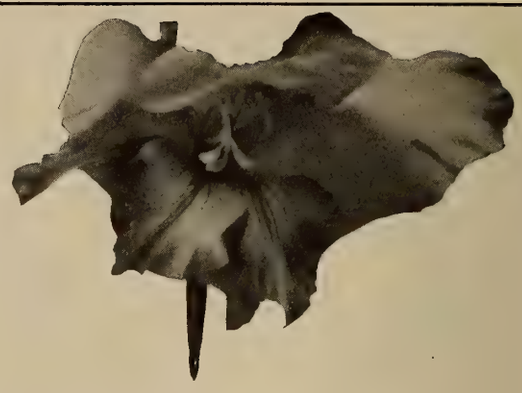

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	Avium Roseaplena		**Neidwitzkiana**
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Boxwood (Buxus sempervirens), bushes 1 ft. per 100 $20.00	.30	3.00
Flowering Shrubs: Hydrangea pan. grandifl., bushes 1½–2 ft.	.25	2.50
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In the simplest possible words and style, and in the most fascinating kind of story. The Mary Frances Garden Book *actually teaches* children how to grow all their favorite flowers and vegetables—how to prepare the soil, how to plant the seeds, how to plant bulbs, the names of parts of flowers, how plants grow by fertilization and reproduction, how to guard against insect enemies, how to care for growing plants, how to make a hotbed, what flowers and vegetables are best for children's gardens, etc., etc., and gives an outline of each month's work for a year. It gives the little reader a more intelligent knowledge of the processes of Nature, and of how to direct them in gardening, than the majority of grown people possess. It also instils a love and appreciation of plant and animal life, and of all Nature.

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THE GARDEN MAGAZINE

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The Garden Magazine

VOLUME XXIII APRIL, 1916 NUMBER 3

THE MONTH'S REMINDER

For reckoning dates, the latitude of New York City is generally taken as a standard. In applying the directions to other localities, allow six days' difference for every hundred miles of latitude

APRIL is the one month above all others when the gardener must have his wits about him. There are many things to do; a very limited time in which to do them, and if he allows himself to get "rattled," like a green soldier under fire, some things will be omitted, and others done at the wrong time and in the wrong way. Therefore, before taking your perennial plunge into actual garden making, take one last look over plans, equipment, etc., to be sure that all is in readiness.

THIS MONTH'S BIG JOB

APRIL is preëminently the time, in the garden cycle, when attention should be concentrated on getting things into the ground. But, it is much better not to plant anything, than to make a beginning that is not to be seen through to the end. Failure here causes more loss of plants every year than all the insects that crawl, fly, or burrow! Don't let yourself get carried away by the enthusiasm of the moment. Go carefully over the list of things to be planted this month herewith, and check off the things that you ought to do—not all the things you would *like* to do! Then copy the list, put an approximate date for each item, and keep this "planting list" handy to prompt and to check up your work from day to day, or week to week. As to the actual work of putting your seeds, plants, bulbs, and roots into the ground: First of all, *plant on time.* Second, plant carefully and thoroughly; never in a hurried, slipshod way. If you find you cannot apply these two rules, without exception, to all you have planned to do, cut down your plans! Much better to do that than waste time and money on future failures.

Stock Newly Received

THE first step is to have everything in perfect order for planting; your care must begin at the express office.

Seeds: Keep them in a dry place, safe from mice, children, and possible accidents.

Plants: Get them immediately on arrival; unpack; cut open bundles, if they are tied; if dry, place roots, packing and all, in shallow water until soaked up; keep covered with moss or wet burlap; keep in shady, sheltered place; plant soon.

Potted plants: If they have been removed from pots, and cannot be planted immediately, repot; plunge pots into soil or ashes to rim; shelter from hot sun; water very frequently; do not crowd close together.

Bulbs: Examine carefully, removing any injured or decayed; keep in packing, away from extreme heat and dryness, until ready for use.

Shrubs and fruit trees: Do *not* remove packing from about roots; examine carefully; and if dry, place in shallow water until moist; "heel in" in loose soil, in shady place until ready for planting.

With any of these things, if everything is not satisfactory, whether as to packing or quality, put in your claim at once. Any responsible house will be glad to make right anything which may be their fault if you give them the chance, and let them know *promptly.*

Of course it is assumed that you will do your part in giving the newly arrived stock a good fighting chance for itself by proper planting. Always plant on a freshly prepared surface. This is most important. Many people think that this precaution is required for small seeds only. As a matter of fact, it is an extra guarantee of success even with shrubs and trees. Fresh, moist earth about the roots is as necessary as about seeds. Furthermore, the work can be done more quickly and more easily. Thorough preparation, which is more than "skin deep," is one of the most essential factors toward a successful planting.

The iron rake is the tool to use in putting on the finishing touches and making a smooth, fresh surface, just before you begin to plant. When you sally forth to plant, in addition to the iron rake, provide yourself with reel (or two sharp, stout stakes), a stout line long enough to reach at least the length of the row, a supply of labels—eight or ten inch, painted—and an indelible pencil. An ordinary hoe, and a heart-shaped hoe for making drills, should also be included, if you have large seeds to plant. Carefully test the seed-drill *before* you take it to the garden.

Plant this Month

¶ **Vegetables outside;** *from seed;* beets, carrots, chard, corn (extra early), kohl-rabi, leek, lettuce, onions, parsley, parsnips, peas, potatoes, radish, salsify, sorrel, spinach, turnips.

Plants and Roots; asparagus, beets, cabbage, cauliflower, horse-radish, kale, lettuce, onions, onion sets, potatoes (sprouted), rhubarb.

Seed, for transplanting later; asparagus, brussel sprouts, cabbage, cauliflower, celery, kohl-rabi, leek, lettuce.

¶ **Vegetables;** *under glass;* beans, cucumber, egg-plant, melons, peppers, tomatoes.

For transplanting later; beans (pole), corn, cucumber, gourds, okra, pumpkins, squash.

¶ **Flowers, outside:** *plants;* Ageratum, Alyssum, Antirrhinum, Bellis, Dianthus, Forget-me-not, Pansies, Paris Daisies, Petunias, Stocks, Verbenas, and other hardy annuals and biennials, and half-hardy perennials.

Seed; the above, and in addition, Asters, Candytuft, Carnations, Celosia, Centurea, Cucumber (vine), Dianthus, Dimorphotheca, Eschscholtzia, Hollyhocks, Kochia, Marigolds, Morning-glories, Nasturtiums, Poppies, Pyrethrum, Sweet Peas, Sweet William, and others of the hardier kinds.

Hardy perennials; of all kinds such as carried by nurserymen, or to be had by "division" of old clumps from your own or neighbors' gardens.

Bulbs and tubers; Gladioli, Anemomes, Irises, Zephyranthes, Incarvillea Delavayi, and toward the end of the month, Cannas and Dahlias, dormant roots.

¶ **Shrubs;** the deciduous shrubs and most of the evergreens may be put out now as well as in the fall, but early planting is important, especially with the latter.

¶ **Fruits;** pome and stone fruits, currants, gooseberries, cane fruits, and strawberries, may all be planted now, the earlier the better.

Planting Seeds

IN THE average garden the majority of things are grown from seeds. Yet every year there are thousands of failures blamed on "poor seeds," simply because many gardeners, even those of some years' experience, will not take the trouble to follow a few simple rules. The first thing to learn, in planting seeds, is when the various kinds may be planted safely, so far as temperature is concerned. Dates are misleading, because seasons vary so greatly. Here is a simple rule:

Plant the very hardy things, such as onions, onion sets, smooth peas, sweet peas, turnips, radish, spinach, and early beets, just as soon as the ground is dry enough to be worked. (See last month's "Reminder.")

Plant the hardy things, such as cabbage and lettuce plants, and cauliflower, beet and onion "prickers," beets, Swiss chard, lettuce, carrots, wrinkled peas, parsnips, salsify, potatoes, kohl-rabi, and summer spinach, when the peach or pear trees are in bloom.

Plant the tender things, such as beans, corn, cucumbers, gourds, melons, okra, and pumpkins, when apple trees are in bloom.

Ground Plants of tomatoes, peppers, eggplant, okra, melons, pole-beans, corn, etc., should not be put out until after danger of late frosts has passed (somewhere about the end of May near New York).

Stick to Your Plan

IN PLANTING, follow your plan carefully. Make every row straight, even if you have to mark it over a second time—it looks better, and the extra time spent will be saved each day when you come to use the wheel-hoe. Be careful to get your first row at a right angle with the

side of the garden. If you do this you can begin planting at any point on your plan.

Cover small seeds, like lettuce, radish, or onions, ¼ to ½ inch deep; medium size, such as beets, spinach, parsnips, ½ to 1 inch; and large seeds, such as beans, corn, and pumpkins, 1 to 2 inches. In heavy soil, wet weather, or early in the season, cover more lightly than for normal conditions; in very light soil, or hot, dry weather, more deeply. Make extra early plantings of beets and peas extra thick, to allow for losses. Read last month's Garden Magazine for other details of sowing vegetables, quantities, length of row, etc., etc.

A common error is loose covering of the seeds in the drill. This is poor planting, especially in dry weather. Firm the soil down lightly over the seed. Fortunately, the seed-drill does this automatically; but peas, beans, corn, and melons, often come up poorly because of neglect in this respect. Where seeds are sown by hand, cover immediately with fresh moist soil, and press down with even treading along the row.

Tag every row carefully, as soon as planted, showing the variety, date, firm bought from, and, if your planting table shows it, the date on which the first gathering for the table should be ready. The last item is very important in checking up your garden results, as a basis for next year's plans; and half the fun of gardening is to do it more efficiently each succeeding season.

Setting Out Plants

NEXT to seed planting the most important part of the gardener's work is skill in the technique of transplanting. How often do you hear concerning some gardener, that if he "only touches a thing, it is bound to live"? There is no "king's touch" in the garden game. People who "love" plants are more successful with them, merely because such persons take greater care in handling them. The first essential in transplanting is to have good plants. They should be well hardened off (see March Reminder, covering cold-frames); this applies to plants in flats and in pots even more than to those growing in frames. In buying plants, select stocky, compact, dark colored ones in preference to very large ones.

PREPARE the soil as carefully as though you intended to sow seeds. Mark out the rows, and if fertilizer is to be used, mix it thoroughly with the soil before beginning transplanting. Then prepare the plants carefully. Unless they are very small, cut back the largest leaves about one half with an old pair of scissors. With a small trowel or an old knife, cut them out of the frame or flat in which they are growing, keeping as much soil as possible with each. (If in flats, cut them out as you use them in the garden.) If they are in pots, knock them out carefully and pack into flat for convenience in handling. Paper pots, which produce the best plants, are not removed before planting. Water thoroughly the day before planting, so that the soil will be in the best condition for handling; but for several days before planting, it is well to keep the plants "on the dry side," as they will then reëstablish themselves more quickly when set out.

Points in Transplanting

WHEN transplanting, make sure of three things: (1) that the plants do not wilt before being set; (2) that they are put in firmly; (3) and that the roots do not come in direct contact with any commercial fertilizer or fresh manure (bone, guano, tankage, and cottonseed meal are comparatively safe). Do the work preferably on a rainy day, or late afternoon, and protect from wind or sun while planting. In setting the plants, put them considerably deeper than they were growing before; press fresh soil firmly about the root with the hands, and unless the plants are very small, press soil still more firmly over the roots with the balls of the feet. *A plant well set will pull apart before pulling from the ground.* In dry weather, pour a pint of water or more in the bottom of each hole *before* planting. Plants in hills, set out late, such as tomatoes, eggplants, pole beans, and melons, may be kept from wilting after planting by covering each plant with a newspaper "tent," held in place at the bottom with soil or stones.

In planting roots, such as asparagus, rhubarb, perennials, etc., avoid direct contact with manures or fertilizers. Any bruised or broken roots should be cut back to firm flesh. Spread the others out in a natural position, giving plenty of room, and cover with fine, fresh soil. If water is necessary—though it seldom is at this time of the year—use it *before* planting, as above.

Pruning After Planting

AFTER planting, use your pruning knife unsparingly. In the case of fruit trees, cut back from one to two thirds, or even more. Peaches and Japanese plums, unless very large, should have all side branches cut close, and the remaining 'whip" cut back to about two feet at most. If large, cut back to leave four or five lower branches and cut these back to a few buds. Apples, pears, and other plums, should have the main branches cut back about half, to form the frame, and others removed entirely. Gooseberries and currants should be given similar treatment. Cut cane-fruits down to mere stubs. If you want some *fruit* this season, plant a few extra ones, and let them go as they are. Be severe with newly planted Roses; cut back to only a few buds on each branch. For further information about Roses, see page 160.

EARLY THIS MONTH

Planting First: First on the order of this month's business comes the planting of the earliest vegetables. Be ready to take advantage of the first suitable day, because the first warm spell is frequently followed by more bad weather. The gardener who is ready makes a great gain here.

Rhubarb: One of the first things to need attention as the frost leaves; often neglected; dig about thoroughly; apply nitrate of soda, and well rotted manure; former produces wonderfully quick results. Boxes or barrels over some clumps will help to force it, and make it extra tender.

Asparagus: Work in the winter dressing as early as possible; apply high-grade fertilizer and nitrate of soda. As soon as big enough cut every other day, using a regular asparagus knife to avoid injury. A few stalks may be left as "traps" for the beetles.

Sea Kale: If properly prepared in the fall, this will need little attention until after the blanched growths are cut. Then remove blanching material, and hoe and cultivate for good growth during summer.

Plant Supports: Last call! Cut pea brush and bean poles before the leaves start; should have been done long ago. If you haven't any handy, make use of next rainy day to prepare supports from lath and furring strips.

Planting Shrubs and Fruit Trees

PLANTING of shrubs and fruit trees differs in several ways from the things above. In the first place, the roots are usually almost or quite without soil; but if they have been well handled they should be moist, so that some of the very small roots are still ready to become active again as soon as conditions are favorable. Go over the roots carefully and cut back any injured ones. Shelter carefully until the moment of actual planting. Prepare the holes in advance, and make them of generous size; dynamite may be used for sub-blasting is subsoil is stiff. In the case of the shrubbery border, *prepare the whole space instead of individual holes*—a little more work, but infinitely better results! Mix with the soil both fine and coarse bone, say two thirds of the latter. Plant a very little deeper than the shrub or tree was growing before. Pack the soil around the roots with the fingers, and then press it down with the foot, several times, during the filling of the hole—don't wait until the soil is all in, and then merely compact it on the surface; that is just the condition that isn't wanted. Leave the surface two or three inches of soil, light and mellow.

Look to the Lawn

IS THE lawn looking poorly? Treatment will depend on condition. If it's just sort of ragged and frazzled, rake it to within an inch of its miserable life with a steel rake; never mind if some of the hair comes out by the roots—it's probably dead stuff. It there is much old dead stuff on it burn it before beginning operations. Then give it a good dressing of humus, to which has been added sheep manure and bone dust; 5 to 10 pounds of bone dust, and 10 to 25 of sheep (or commercial dry yard manure) to 100 pounds of humus. Rake this in thoroughly. Then water, or wait for a good rain. After that, sow on a good lawn seed mixture (buy the best you can find). Roll lightly. Do not cut until several inches high, and then cut and water regularly, and use a heavier roller.

If your lawn is really in a bad way, so that there is some doubt of its recovery, use still more drastic methods. Fork or spade up the poor spots, adding rotted manure; fill in any hollows with clean fresh soil; beat down humps with the back of a spade or tamper; where sod is thick, or dirt hard, use a perforating tamper (a piece of two-inch plank with four-inch spikes through it, and a handle affixed, will do). Then treat as above, using more seed on the raw spots. A really bad lawn can often be "brought back" in this way cheaper than making a new one.

In preparing the new lawn, remember you are making something to last for years, and don't be tempted to skimp on the work. Perfect drainage, and four to six inches at least of good top soil, are the main requirements. A good live humus is especially valuable here, because it will introduce the needed bacteria which the soil, even though good, may lack. Roll with heavy roller and then prepare a new surface for sowing, rolling lightly afterward.

Hedges: As soon as new growth starts, repair the winter's damage. Gaps may usually be filled by bending down and pegging new branches from either side. Winter-killed wood should be cut out at once. If necessary to buy new plants do it at once; nothing looks shabbier than a shabby hedge.

In Frames and Greenhouse

BY THE first of the month, at latest, the frames should be full of the first batch of plants for the garden—cabbage, lettuce, beets, cauliflower, etc. Don't coddle these things a bit after the first two or three days from the greenhouse. Leave the sash off altogether for several nights before they are wanted for planting outside. A few degrees of frost won't hurt them, but don't take a chance on a hard freeze, or they may be checked badly, even if they survive.

Start tender vegetables: Don't neglect to take precautions now to assure yourself the earliest cucumbers, melons, sweet corn, etc., in your town. Paper pots or dirt-bands, mellow rich old compost, a few flats, and a hotbed or a warm spot in the greenhouse, make up the answer. Be careful to mark or tag each pot, unless you have a flatful of a single kind.

And Now the Berry Patch

DON'T be in too great a hurry to remove the mulch from the strawberry bed. Keep the blossoms back as long as possible, especially on the early flowering kinds. When you do take the mulch off, just push it to one side, so the plants can shove up through it, and the berries will be kept off the ground and clean.

The new Strawberry bed: If you are intending to set out a new bed this spring, the earlier you can get at it the better. There are two things to avoid: planting on sod ground, and using chemical fertilizers "in the hill." Remember that "everbearing" varieties, such as "Progressive" and "Superb," set out now, will give a good crop this fall.

BEFORE THE END OF THE MONTH

THE ADVANCE line of the insect army may put in an appearance this month. The cut-worm is one of the first; poisoned bran mash is the best "cure"; paper collars will keep him off individual plants. For green aphis on early peas or cabbage, spray with kerosene emulsion.

In the orchard, keep a sharp watch on conditions, and go ahead with your spraying, according to schedule. Attend to early pruning; remove any winter-killed or broken wood. All early flowering things, such as Forsythia, are to be pruned *just after blooming.* Perennials may be divided and replanted; trees and shrubs moved; grafting done (see last month's number), etc.

IN "LILACDOM"* — E. H. WILSON, Arnold Arboretum

[EDITORS' NOTE.—*This, the eleventh article of this series, will appeal to every garden lover, since the Lilac is universally known and admired. It is the one flowering shrub above all others that seems to be most closely associated with the spirit of the home. The possible future development of this delightful family of hardy plants as here suggested opens up rich visions of loveliness yet to come.*]

LILACS are among the few hardy shrubs that have truly entered into their kingdom in the gardens of eastern North America. They need no introduction to the readers of THE GARDEN MAGAZINE, and well they merit their popularity. For regions where cold winters are followed by hot, dry summers they are ideal shrubs. The Common Lilac (*Syringa vulgaris*) is the most accommodating of plants and thrives in all sorts of queer places and under all sorts of adverse conditions but its progeny and its congeners are more exacting, and if good results are expected the plants must be treated liberally.

Give room for the Lilac. This bush of the Persian Lilac, growing in the garden of Prof. C. S. Sargent, illustrates the spread of the plant—21 ft. diameter

Now, the Common Lilac is native of the mountains of Bulgaria and was sent from Constantinople to Vienna about 1560. From there it soon reached western Europe and both purple and white kinds were cultivated in 1597, by Gerard in London. It is not known with certainty when, or by whom, this Lilac was introduced to North America but Washington wrote about it in his diary and planted it at Mt. Vernon where his plants or their descendants are growing to this day. But although so long cultivated in gardens it is only recently that its native habitat has become known. In the Arnold Arboretum may be seen growing specimens raised from seeds gathered from wild plants. They have narrow clusters of dull purplish flowers and are by no means attractive garden shrubs.

During the last fifty years horticulturists, especially those of France and in a lesser degree those of Germany, have paid great attention to the Common Lilac and the result has been a plethora of beautiful shrubs. In fact virtually all the plants known in a general way as Lilacs have been derived from *S. vulgaris*. I shall recur to this point later, but it may be stated here that the possibilities of improving upon the present-day forms of the Common Lilac appear to be few but there are other members of the kingdom possessing vast potential values.

WHERE LILACS COME FROM

The Lilacs, of which some twenty-five species are known, are all native of the Old World and some are shrubs and others small trees. The Common Lilac (*S. vulgaris*) and its Hungarian confrère (*S. Josikaea*) are native of southeastern Europe; the Persian Lilac grows wild in southwestern Asia from the Caucasus to Afghanistan, and in the western Himalaya *S. emodi* is found. All other known species are natives of eastern Asia and no fewer than seventeen species are indigenous to China proper. Only one species (*S. japonica*), and that a Tree Lilac, is found in Japan. In the gardens of Peking and of other places in northern China the white-flowered *S. affinis* has been cultivated from time immemorial.

All Lilacs are very hardy plants, and, the fact that none is native of this country notwithstanding, every species so far brought into cultivation has proved hardy in the Arnold Arboretum. When their wide range of distribution is duly considered this is remarkable. In very severe winters the Himalayan *S. emodi* suffers somewhat and the flowers of the Chinese *S. oblata* are occasionally injured by late spring frosts but no other sort is hurt. And not only are Lilacs quite hardy in the colder parts of New England and elsewhere but they thrive better there than they do across the water in Great Britain.

As mentioned already the ordinary colored and white forms of the Common Lilac will withstand considerable hardship and abuse but their progeny to give the best results demand a good soil and this is true for all the other species. A well drained, good rich loamy soil suits them best and if the soil contains a certain amount of lime so much the better, for Lilacs generally are fond of lime. Full exposure to the sun and air is necessary and their beauty is displayed to best advantage when the plants are allowed a sufficiency of space in which to develop freely. They are essentially plants for northern New England and regions with a similar climate; in southern New England and southward the leaves in summer are often temporarily disfigured by mildew.

GET PLANTS ON OWN ROOTS

A decade, or a little more, ago it was customary to propagate Lilacs by grafting them on Privet (Ligustrum) stock, but this pernicious practice has met with the opprobrium it merits and to-day any dealer selling plants so propagated deserves to be ostracised. It is the nature of most Lilacs, and of the Common Lilac in particular, to sucker freely and this alone demonstrates the necessity for their being on their own roots. If the plants get unshapely or too large, own root Lilacs may be cut almost to the ground with advantage for they will spring up and soon make shapely bushes again. Cuttings three to four inches long of thin but firm, half-ripened wood taken from mid-July to early in August and inserted on a spent hotbed or in prepared soil out-of-doors will root in about six weeks, and in three years make nice plants. Also they may be budded or grafted on seedling stock of the Common Lilac and by this method, although it is not to be recommended, saleable plants are produced in two years. When potting the stocks carefully remove all adventitious buds; suckers should not be used as stock since it is impossible in these to control the development of adventitious buds. But, after all, there is no valid reason for propagating Lilacs other than by cuttings for by this means the particular variety is on its own roots and the advantage to the garden-lover is obvious and lasting.

THE BEST OF THE COMMON LILACS

In the Arnold Arboretum about one hundred and twenty named varieties of the Common Lilac are cultivated and in addition some twenty species and several hybrids, and the season of flowering lasts from about the first of May to the first week of July. In Highland Park, Rochester, N. Y., where great attention has been given to these plants there is the most complete collection of the varieties of the Common Lilac to be found anywhere on this continent. In all, this Park has two hundred and ninety-seven kinds of Lilacs and on May 22nd, 1915—"Lilac Sunday"—between the hours of six A. M. and eight P. M. some fifty to sixty thousand people visited this collection.

Such collections are of great interest and of much educational value; but private gardens cannot accommodate such numbers.

If the best only be desired no such quantity is necessary, for within the limits of a dozen the best and most desirable kinds of the Common Lilac may be had. In recent years many of the seedlings raised and named and sold by nurserymen show no improvement on the older varieties. The beauty limit appears to have been reached and it is evident that no great additional improvement can now be expected from seedlings of the Common Lilac. But granted that a dozen will include all that is best in these plants the selection is onerous and difficult since individual taste is all important. Some people do not like the double-flowered sorts and others have preference for certain shades of color. I am without prejudice or bias in these matters and of the sorts of the Common Lilac of proven merit in the Arnold Arboretum I would select the following dozen: Marie Legraye, Princess Alexandre (single white); Madame Lemoine, Miss Ellen Willmott

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A FEW DIFFERENT LILAC TYPES

S. pubescens, pale lilac — *S. affinis*, var. *Giraldii*, early — The Rouen Lilac, popular hybrid — *S. Josikaea* from S. E. Europe — *S. villosa*, late flowering

(double white); Gloire de Moulins, Macrostachya (pink); Charles X (rosy lilac); Volcan, Congo, Philemon, Ludwig Späth (dark red-purple); Justi (blue). Be it understood all these are forms of the Common Lilac and it is not supposed that this selection in its entirety would satisfy every enthusiast.

OTHER KINDS WORTH KNOWING

But the Common Lilac and its very numerous descendants do not exhaust Lilacdom. Far from it—very far from it. There are other species and there are hybrids of singular beauty and charm which deserve wide recognition. Some blossom earlier than the Common Lilac and its forms, and others later; together they extend very considerably the Lilac season. Further, it is in the hybridizing of these species that advance in this useful and pleasing class of plants must be looked for in the future. As we shall see later a beginning has been made and our gardens enriched thereby.

THE EARLIEST TO FLOWER

Each succeeding year in the Arnold Arboretum there is a close race between two Chinese species (*S. affinis* and *S. oblata*) to be the first Lilac to blossom and usually the first-named wins. This has white flowers and is very abundantly cultivated in the gardens of Peking, and from there was introduced to the Arnold Arboretum by Mr. S. T. Williams in April, 1904. It is a tall bush of loose, irregular habit and has thin branches and sweetly fragrant flowers. The wild prototype of this Lilac was recently discovered in northern China and named var. *Giraldii*, after Père G. Girald, an Italian priest of the Roman Catholic Church, and reached us through V. Lemoine et Fils in 1906. This has mauve colored flowers which open about the same time as the type. The other species (*S. oblata*) is a sturdy and broad shrub of good habit and has handsome leaves, thick and leathery in texture, which in the autumn turn to a deep bronze-red or wine color. The flowers are large, pale lilac and very fragrant but unfortunately they are often injured by late frosts. It was introduced to England by Robert Fortune from Shanghai about 1854. In Peking gardens it is much cultivated and Dr. E. Bretschneider sent seeds from Peking to the Botanical Garden, Petrograd, where plants from this source flowered in 1888.

Syringa pekinensis, one of the Tree Lilacs, grows about thirty feet high

The next Lilac to open is *S. pubescens*, also native of northern China, and was introduced in 1882, by Dr. E. Bretschneider who sent seeds to the Arnold Arboretum, where it flowered for the first time in 1886. This is a free-growing and free-flowering shrub with erect and rather slender stems, small hairy leaves and large clusters of pale lilac, fragrant, long-tubed and rather small flowers with dark violet anthers and is among the most beautiful of all Lilacs. These three Chinese species are the heralds of Lilacdom. In rapid succession follow the Common Lilac with its numerous progeny and several other species.

SOME LATE KINDS

After the Common Lilac has finished flowering, or nearly so, the Persian Lilac (*S. persica*), with its huge clusters of small, fragrant flowers which weigh down the slender branches, assumes the throne. This lovely Lilac was cultivated in England as early as the middle of the seventeenth century but it is now all too seldom seen in gardens. In cultivation it is a broad and shapely bush of medium height with small leaves and is extraordinarily floriferous. The type has pale rosy-purple flowers, and so too has the form *laciniata* with deeply incised leaves, but there is also a white flowered variety (*alba*).

Closely allied to the Persian Lilac is *S. pinnatifolia*, a newcomer which I had the pleasure of discovering on the borders of China and Thibet and of introducing to cultivation in 1904. This species is remarkable in having pinnately divided leaves and in this character is distinct from all others. It has small pale mauve colored flowers which are borne in broad pyramidate clusters but thus far under cultivation it has not flowered freely and unless it improves with age it will have to be considered more in the light of a curiosity than anything else.

ONE WITH DROOPING FLOWER CLUSTERS

The most distinct of all Lilacs is the new *S. reflexa* with narrow, cylindrical flower clusters from nine to twelve inches long which arch downward from near the base and thus hang somewhat like the inflorescence of the Wisteria. The expanding flower-buds are bright red and the open flowers are pale rose-color. It will thus be seen that this is a plant of singular and most distinctive beauty and in the hands of the hybridist may be the forerunner of a race totally different in aspect when in flower from present-day Lilacs. A strong growing shrub from eight to twelve feet high, with erect stems and oblong lance-shaped leaves, its season of flowering is mid-June. It is native of the margins of woods and thickets on the mountains of western Hupeh, in central China, where I had the good fortune to discover it in 1901, and of introducing it, together with another new species (*S. Julianae*) in 1902. The latter is a broad shrub scarcely exceeding five feet in height but is twice that much in diameter, and has thin and twiggy branches and small, softly hairy leaves. Its rather small clusters of flowers are very freely produced and the flowers are small and fragrant and have violet-colored anthers. It differs from all other Lilacs in having the stalks of the inflorescence and of the individual flowers and also the outer surface of the corolla-tube a deep purple color. The inner surface of the corolla is white so that as the flowers open the inflorescence is purple and white and the contrast is most pleasing and is heightened by the dark violet anthers. It flowers toward the end of June.

A late flowering species which under cultivation has yet to show its qualities in perfection is *S. tomentella*. I saw this plant in flower for the first time on July 9, 1908, on the frontiers of eastern Thibet at an altitude of nine thousand feet, and I thought then that I had never before seen such a handsome species of Lilac. It had foot high, broad panicles of pink to rosy-lilac colored flowers and on other bushes they were white. The plants were from eight to fifteen feet high, much-branched yet compact in habit and the wealth of flower clusters made it conspicuous from afar. The leaves are elliptic-lance-shaped or rather broader, four to six inches long and more or less hairy on the underside. In 1903, I had collected in the same locality seeds of this Lilac and successfully introduced it to cultivation. Being rather variable in certain characters it has received several names (*S. Wilsonii*, *S. Rehderiana*, *S. alborosea*), but it must be known by its oldest name of *S. tomentella*. Under cultivation it has flowered several times and I am patiently waiting for it to show its real character.

Of the late-flowering Lilacs the best known in this country and perhaps the hardiest of all is *S. villosa*, a native of northern China and from near Peking introduced by Bretschneider to the Arnold Arboretum in 1882. It is a large shrub of excellent habit with erect fairly stout branches and oblong-lance-shaped, rather pale green leaves. The flowers are rose-colored, pink or nearly white, but they have an unpleasant odor. It is, however, a first-rate garden shrub, exceedingly floriferous and very valuable for its hardiness and for its late flowers. Very similar in habit to the above but with bluish purple flowers is the Hungarian Lilac (*S. Josikaea*) and though much inferior as a garden shrub to its Chinese relative it has proved

The Rouen Lilac, often erroneously called Chinese, flowering just after the Common Lilac, is very floriferous

Syringa reflexa has pale rose colored flowers in foot-long clusters that hang downward. This should interest the hybridist

valuable as a parent as we shall see when we come to the hybrids.

Of all late-flowering Lilacs the most strikingly handsome is *S. Wolfii*, native of Mandshuria and introduced to cultivation at Petrograd by Russian botanists. From there it was sent to the Arnold Arboretum in 1906, before it had received a name. In foliage and habit it resembles *S. villosa* but it is a much more vigorous and a taller plant. The flowers are small, dark blue-purple to rose-purple and are borne in erect, branched clusters often two feet high and a foot broad and are produced in great profusion. Unfortunately the flowers lack the fragrance of the Common Lilac and of several of the Chinese species but in spectacular beauty it transcends them all.

The Himalayan Lilac (*S. emodi*) is among the last of the true Lilacs to flower and is less hardy than any other. It is a large bush or bushy tree occasionally eighteen feet tall, with oblong pointed leaves, light yellow-green above, silvery gray and hairy below, and bears long narrow clusters of small white fragrant flowers. In its pale foliage it is distinct from other Lilacs and it is one of the very few species which thrive better in Great Britain than in New England.

In 1915, the last of the true Lilacs to flower in the Arnold Arboretum was *S. Sweginzowii*, a newcomer from northwestern China. This is a shrub of compact habit with rather slender dark red branches and twiggy branchlets with dark dull green sharp-pointed leaves and long narrow clusters of delicately fragrant blossoms. The flowers are flesh-colored in bud and nearly white when fully open and the corolla-tube is slender and about half an inch long.

Of true Lilacs some half dozen other species are in cultivation in the Arnold Arboretum and promise to have their own peculiar sphere of usefulness in gardens. But at present we do not know enough about their garden value, and, since they are scarcely obtainable, further mention of them here may be omitted.

THE TREE LILACS

The Tree Lilacs, of which there are three species all native of northeastern Asia, differ from the true Lilacs in having a short corolla-tube and protruded stamens. They are large shrubs or small trees with large, broad, much-branched clusters of white flowers of unpleasant odor. They blossom when the flowers of the latest of the true Lilacs are fading. The first of these Tree Lilacs to bloom is *S. amurensis*, from the Amur region of northeastern Asia. This is a small bushy tree with dark green leaves and flat spreading and slightly drooping clusters of ivory-white flowers. The next to open its flowers is *S. pekinensis*, native as its name suggests of northern China, and is a large bush or bushy tree from twenty-five to thirty feet high and as much through the crown. The branches are more or less pendent at the ends and are clothed with lustrous reddish brown bark which separates into thin layers like that of certain Birch trees. The pointed leaves are long and narrow and hang gracefully and are surmounted by half-drooping flower clusters which are flat and unsymmetrical and smaller than those of the other two species of this group. It was introduced to cultivation by Dr. E. Bretschneider who in 1882 sent seeds to the Arnold Arboretum, where it flowered for the first time in 1889.

The last to flower is *S. japonica* and this is the best known of the three Tree Lilacs. It is common in the moist woods and forests of central Japan and increasingly so northward and throughout the Hokkaido, from hence it was introduced to cultivation by Colonel William S. Clark, who sent seeds to the Arnold Arboretum in 1876. At its best it is a round-topped tree from thirty to forty feet tall with a clean stout trunk covered with smooth lustrous bark like that of a Cherry tree. The leaves are large, thick and dark green and the flowers are borne in large erect symmetrical clusters. The wood is very durable in the ground and for this reason is esteemed above that of all other trees by the Ainu people of Hokkaido for making their *inaos* or wooden wands used for religious and ceremonial purposes. These inaos are looked upon as continual guardians against harm from Nature, disease and evil spirits.

THE SPLENDID HYBRIDS

Apart from the very numerous seedling varieties of the Common Lilac there are a number of very beautiful Lilacs of hybrid origin and in the years to come a great development of this favorite shrub may be looked for along these lines. Hybrids are usually more vigorous in growth than species and often vastly more useful as garden plants. Plant-breeding is full of surprises and it is often the case that parents of indifferent or relatively little garden beauty by judicious mating yield offspring of inestimable value. Already this has happened in Lilacdom. The Hungarian *S. Josikaea* is perhaps the least beautiful of all known Lilacs but crossed with the Chinese *S. villosa* it has given rise to a handsome new race known collectively as *S. Henryi* after the originator,

Syringa Wolfii, most striking of the late blooming Lilacs. Flowers small, dark blue-purple, in 2-foot high clusters

Monsieur L. Henry, a gardener at one time attached to the Jardin des Plantes in Paris. The best known and most beautiful of these hybrids is Lutèce, which is a compact, fast-growing, large shrub with foliage resembling that of *S. villosa*, and large erect clusters of rose-purple flowers and it is one of the latest of all Lilacs to blossom.

The oldest of Hybrid Lilacs and one of the brightest jewels in the crown of Lilacdom is the Rouen Lilac which appeared in the Botanic Garden at Rouen in 1795. It is a hybrid between the Common Lilac (*S. vulgaris*) and the Persian (*S. persica*) but through an error as to its origin it was christened *S. chinensis*—a name at once unfortunate and utterly misleading. In gardens it is also known as *S. rothomagensis*. It is one of the most vigorous of all Lilacs and in its slender branches and narrow leaves and its small flowers borne in enormous clusters it resembles its Persian parent while the color of the flowers shows the influence of the Common Lilac. In addition there is a form (var. *alba*) with nearly white flowers.

Another interesting hybrid, also raised in France, is *S. hyacinthiflora* which is a cross between the Common Lilac (*S. vulgaris*) and the Chinese *S. oblata*. It is a large and vigorous and shapely plant with good foliage and small clusters of small, semi-double, bluish-purple, very fragrant flowers. It is less ornamental than many other Lilacs and as a garden plant it is chiefly valuable on account of its earliness to blossom, a character which it inherits from its Chinese parent.

There are other hybrids of value though less well known, but enough has been written here to prove, if it be necessary, that even if the Lilac has entered into its kingdom the frontiers of its dominion have not yet been approached.

[*Next month:* "New Herbaceous Plants from China."]

POPULAR GARDEN FORMS OF THE COMMON LILAC

Mme. Lemoine (dbl. white) Miss Ellen Willmott (dbl. white) Charles X. (rosy lilac) Gloire de Moulins (pink) Macrostachya (pink) Marie Legraye (single white)

Simple Rock Garden Effects—H. S. ADAMS, New York

ROCKS AND SPRING FLOWERS GO SINGULARLY WELL TOGETHER AND WITH THE TWO IT IS EASY TO CREATE DELIGHTFUL COLOR EFFECTS FOR APRIL AND MAY

IT IS not at all strange that the majority of spring garden flowers seem to need rocks to set them off; in most cases nature intended them to have the stony contrast. But this is not a plea for that highly specialized thing the rock garden. Rather is it to show how much can be done in the way of springtime pictures with plants easily raised, a small number of stones —perhaps to be had for the asking—and not a great deal of time or thought.

For a border or two with rocks, as a permanent home for spring flowers, is one of the simplest of garden matters. And if you are sighing for a real rock garden—the Alpine sort—that is beyond your reach, this compromise is a pleasant enough consolation. All that needs to be done is to line a path with stones of irregular size and six inches to a foot high and fill in with sufficient good soil to a line not less than four feet back from the path.

That is the bare essential. It is more than desirable that a part of the path should be shaded and if it is not straight so much the better. If the outer lines are crooked, better yet; if there be little side paths, still better. And it is not much more work to double the naturalistic effectiveness by placing, before filling in the border, stones that will, here and there, break the ground into pockets and others that will outline the background. With a little extra thought, and work, the garden may be elevated at points.

For such a rockset border there are available so many perennials, including all the spring bulbs, that the difficulty is to choose from the array of color material. One of the most charming of the effects in the pictures herewith is also one of the easiest to create. This is nothing more than the juxtaposition of the sort of light tapestry blue of Phlox divaricata and the bright gold of Alyssum saxatile. Only three plants of each will create it, or there may be bold color painting with dozens of both.

Another excellent contrast may be obtained with the clear blue of that sadly unappreciated old-fashioned flower, Polemonium reptans, and the white of the hardy Evergreen Candytuft, Iberis sempervirens. The Polemonium has myriads of little bells and they fall very gracefully over rockwork. Biennial Forget-me-not and Arabis albida are another good blue and white combination. Or the Forget-me-not may be used in both the blue and the white variety.

Purple and mauve are by no flower better furnished than by the Aubrietia.

Here a little patch of Aubrietia wanders down into a scattered colony of yellow, red and pink Primulas and has behind it the double Arabis albida.

Either from seed or otherwise this comparatively rare plant in American gardens is not difficult of cultivation. Were it so, its various hues would be too precious to lose. The Aubrietia goes particularly well with the creamy white of the double Arabis albida. Both are rock or wall cresses, but they provide two distinct forms as well as colors—a thing to be considered in planting a rock border. Pale yellow Primulas—more especially the common English Primrose—in front of Aubrietia and behind that, in turn, Double Arabis and Alyssum saxatile, are a very pleasing combination of four flowers. Naturally, the disposition of each must be very irregular; no straight rows or spottiness in such a border as this.

Primulas of many kinds fit well into this sort of garden scheme; they like being kept well above the level of the path and some of them feel more at home with the rocks near by. All the pink and blue Primulas and the Auricula should be colonized separately and in the case of Hybrid Polyanthuses and Cowslips care should be taken that the colors are contrasted rather than mixed. Sheets of white, rose or mauve close to the ground are, of course, best obtained by Phlox subulata. A good variation is to let this plant do for the mauve and go to the beautiful Ajuga reptans var. alba, for white and to Phlox amoena, reptans and ovata, for successive rose notes.

The skyline of a spring garden is normally low, but here and there the joyous yellow of the Leopard's Bane (Doronicum), and any of the Columbines may be used to give a semblance of height. Single Daffodils and single Late Tulips, in irregular plantings, serve the same good purpose.

The plumy Bleeding Heart (Dielytra spectabilis) is doubly valuable, as its beautiful foliage and its pink bloom are not only grateful in spring but do not pass until the summer is over. All of the species of Dianthus, not forgetting the dainty Maiden Pink (D. deltoides), are suitable material; so are all of the Stonecrops. The latter are good for spring foliage color, though their bloom comes later. And there are the early Dwarf Irises (I. pumila and cristata); between them they provide purple, lavender and straw color. But already more than enough kinds of flowers for the first year's thought have been mentioned.

Three plants each of Alyssum saxatile (bright yellow) and Phlox divaricata (dull blue) will create a charming little springtime picture like this

A bit of rock border easily duplicated. Various spring flowers, with the blue Polemonium reptans in the foreground and white Iberis sempervirens behind it

~NOVELTIES IN THE BALANCE~

Portraits are here given of some of the more striking or interesting of the season's offerings. Many of them will be on view at the current spring flower shows, while others were displayed at the fall exhibitions. The predominance of new Roses of American origin is again to be noted

Rose Ulster Gem, H. T. An Irish rose, as the name implies. A useful addition to the class of singles. It is a continuous bloomer, flowers very large, color a deep primrose yellow. A medal winner before the N. R. S. (Totty, introducer)

Rose Perle d'Or, H. T. Not a new rose by any means, but "resurrected" owing to the increasing demand for small roses. Color a pleasing yellow

Rose Prince Charming, H. T. A splendid addition to the new popular line of copper reds. Buds long and pointed, flowers developing a deep reddish copper, with base old gold. Foliage in the young state copperish. Flowers medium size. (Totty, introducer)

Rose Nellie Parker, H. T. An Irish rose of vigorous constitution which appears to do splendidly as a bedder. Color a pale creamy white, centre deeper cream, tips of petals occasionally blushed pink. Flowers large and produced plentifully; foliage quite pleasing. Winner of the British N. R. S. Medal. (Totty, introducer)

Rose Mrs. William Randolph Hearst, H. T. Clear dark pink sport of My Maryland which it resembles in form and habit. Likely to be a good forcer and a fine bedder, succeeding under the same conditions as its parent stock. (A. N. Pierson)

Rose Mrs. Bayard Thayer, H. T. Clear rose pink sport from Mrs. Charles Russell, and a welcome addition to the large flowered class as represented by American Beauty. The outside of petals is a shade darker in color than the inside. Heavy and smooth foliage and strong stems. (Waban Rose Conservatories)

Rose Cleveland. A fine bedding rose with mildew-proof foliage. Color a deep coppery yellow at base of petals, upper part flushed reddisn copper or old rose. Named by popular ballot at the Cleveland show last Fall. (Totty, introducer)

Miniature Rose Tip-Top or Baby Doll (actual size), H. T. Blush pink edges of petals marked carmine, but variable. Appearance decidedly "Dresden China-like." Useful for corsage bouquets and light table work. (Hill)

Rose Gorgeous. A striking new rose of vigorous habit producing well formed flowers abundantly. The bud at opening is heavily veined with clear yellow on a salmon ground, when finished is a rich, rosy red with outside of petals old gold. (Totty, introducer)

Chrysanthemum Priscilla. A beautiful clear light rosy pink variety possessing great decorative value. A tall and strong grower throwing large and heavy sprays of flowers. (A. N. Pierson)

Chrysanthemum Peace. Hardy pompon. Winner of Chrysanthemum Society of America's silver cup as best seedling of any class in 1915. Strong growing. White, with pink tinge in bud. (A. N. Pierson)

Chrysanthemum Gipsy. Yellow tinged with salmon, yellow centre, presenting a rather novel color effect. Semi-single, with triple rows of petals, producing a very decorative appearance. (A. N. Pierson, introducer)

Chrysanthemum Early Frost. A white variety which sets buds as early as the yellow Golden Glow. Good either outdoors with protection or under glass. A valuable addition to the list of easy growers

Chrysanthemum Early Rose. A seedling from the white Smith's Advance maturing in the first part of October. Produces under glass 6 in. flowers. Dwarf habit, 2½ to 6 feet. Color a pleasing shade of rose (Elmer D. Smith)

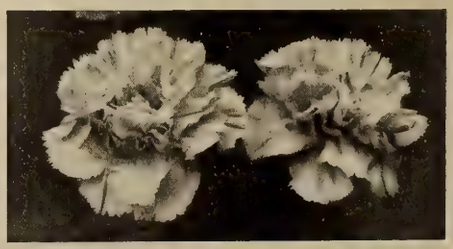
Chrysanthemum Ramona. An excellent single, very deep, reddish bronze in color, gold tip to reverse of petal. A most artistic variety. (A. N. Pierson)

Chrysanthemum White Chieftain. A white sport of the pink Chieftain and identical with it except in color. A mid-season variety and a fine commercial sort. Should be ready for cutting Nov. 1

Chrysanthemum Golden Gleam. A clear bright yellow and an improvement on Golden Age, one of its parents. Compact in growth, and may be planted as late as June 1 with good results (A N. Pierson)

Carnation Arawana. A new crimson the result of a cross between a Beacon seedling and Octaroon. The flowers are large and well formed, are produced freely and keep well. Its habit of growth is good and it has all the earmarks of a good commercial variety. (A. N. Pierson)

Chrysanthemum Miss Isabelle. A bronze sport of the famous Mrs. E. D. Godfrey, maturing in good time for Thanksgiving Day. Excellent for table work. (A. N. Pierson, introducer)



Carnation Alice. A splendid new light pink which promises to largely supersede Enchantress, the most widely grown Carnation extant. Flowers of good commercial size and fine form, possessing excellent shipping and keeping qualities. (Peter Fisher)

Rose George Elger. A welcome addition to the class of miniature Polyanthas now popular for corsage bouquets and light table decorations. Its color is yellow, and the flowers both open and in bud are very handsome. A companion to the pink Cecile Brunner

Rose Red Radiance, H. T. A red sport of the pink Rose Radiance, and a splendid variety outdoors. A very welcome addition to its color class. Habit and form are the same as those of the parent. (A. N. Pierson, introducer)

Rose Crimson Champion, H. T. A free flowering brilliant scarlet bedding Rose raised by John Cook and awarded the silver medal of the A. R. S. after a two year trial in the Society's trial garden at Hartford, Conn. It is not a good forcer. (A. N. Pierson, introducer)

Climbing Cecile Brunner. A climbing variety of the beautiful miniature Polyantha variety of the same name. Color a delicate pink. This is possibly the only climbing rose which will bloom throughout the season, practically from frost to frost

Amaryllis New Hybrids. Of recent years American interest in these gorgeous bulbs has been increasing, and many new strains are offered

Winter Flowering Snapdragon. A winter flowering Snapdragon of a yellow shade is a decided acquisition to the list. This one is vigorous in habit, and throws long flower spikes with a fine array of flowers set closely together. The color of the flowers is canary yellow with throats of much deeper color. (A. N. Pierson, introducer)

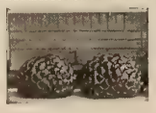
Viburnum Carlesii. An early flowering Snowball of splendid habit, and absolutely hardy, native of China. Pure white flowers, deliciously fragrant. Flowers fine for cutting. One of the earliest of the flowering shrubs. Useful also for forcing

Croton Juliette Delaruye. These very tropical looking plants are extremely decorative and may be successfully used for bedding outdoors. Bright green, with irregular blotches of canary yellow (Dreer)

Pteris Rivertoniana. A finely laciniate and crested form of decorative fern useful for house decoration and window gardening. (Dreer)

Sansevieria Zeylandica var. Laurenti. A recent form of this curious group of greenhouse plants, with creamy yellow variegations on the edge of the leaf. (Dreer)

Winfield Raspberry, which is reported as doing excellently in the West. A chance seedling originating in Winfield, Kansas



Outdoor Roses for Northern Gardens

HAROLD J. STAPLES, Maine

[EDITOR'S NOTE.—*This account is based on an experience of seventeen years, and should be an encouragement to those who live in cold Northern regions. People who are farther south are more favored and can plant earlier and get flowers accordingly. The principles of practice are universal, so this article will help Rose amateurs everywhere.*]

NOTWITHSTANDING its all world appeal and interest, many people in New England do not know that perfect Roses can be grown out-of-doors in their climate and that Roses are no more of a care than any other branch of gardening properly done. Almost every one has space for at least a small Rose garden and often more can be accomplished in a small backyard, if it is sheltered on the north by buildings or a brick wall, than in the more exposed open places. Even if you do not wish to take the trouble to give winter protection but prefer to buy new stock each year, it would be worth while, for the cost of two-year dormant stock is not high. In my experience, this stock gives by far the quickest results. Pot-grown Roses have not been found as satisfactory for bedding purposes, because of a tendency to develop black spot.

The Hybrid Tea, a strong growing dwarf, seems an ideal Rose for amateurs. It is fairly hardy, continuous in bloom, producing flowers of large size, on long stems; and there are many desirable varieties furnishing every shade and combination imaginable and with widely differing characteristics in growth and contour of flower. I prefer the budded plant, and those budded on Japanese multiflora are to be given the preference if they can be secured. Some of our Rose specialists are using this stock for budding purposes and it is possible to obtain it, although it is not used exclusively. Roses budded on Manetti, the stock most generally used, especially by greenhouse growers, do nearly if not quite as well, but have to be looked over occasionally for suckers. Get standard or tree Roses on Dog Rose or rugosa.

A few varieties stand out from the general list of Hybrid Teas in being distinctly superior all around Roses, which will give more and better blooms under given conditions than most of the others. After testing many varieties it seems best to mention in this article only those which have been satisfactory in this climate; first, in quality and quantity of bloom; second, in vigor of growth and beauty of foliage, and third, in hardiness. Mr. George C. Thomas, Jr., in his excellent book, "The Practical Book of Outdoor Rose Growing," gives a list of sixteen best all around Roses for the Middle States, many, if not all of which, should prove of equal value farther north. By proper protection is is possible to winter most of the Hybrid Teas and some of the hardier Teas in this climate and by going to some extra expense and trouble the list might be added to almost indefinitely.

The Wichuraiana hybrids will make a quick growth anywhere, even on light sandy soils

Two Hybrid Perpetuals head the list of popular favorites. They are a little more hardy than the Hybrid Tea and these two bloom almost if not quite as well. They are Mrs. R. G. Sharman-Crawford and Frau Karl Druschki. Mrs. Crawford is a clear pink fragrant flower on a long stem. It is beautiful as a bud and of good form in the full blown Rose, a good keeper and effective when massed in a bouquet. Frau Karl Druschki is unquestionably the best white Rose known and like Mrs. Crawford blooms through the summer. It is of fine pointed form, very double, but without fragrance. Its foliage is very noticeable and unusual, being a thick glossy green, in striking contrast to the white blooms.

Killarney is one of the best pink Hybrid Teas for the garden. The color is a soft light pink, the bud long and pointed, the fragrance delicious, a semi-double flower of large size, measuring five or six inches across when fully open, and resembling a giant wild Rose. The foliage has the beautiful reddish color of the Tea, the growth is rapid, and it is a constant bloomer. There is an improved Killarney called Killarney Brilliant which is a darker pink and also a White Killarney; these have the same general habits of the original. The one criticism of this Rose is that it is likely to mildew toward the end of the summer if there is much moisture in the air.

Another pink Rose of very special merit is My Maryland. This was originally grown for cut-flowers but has proved an excellent bedding Rose and certainly one of our most beautiful pinks. The color is a clear peach-blossom pink, it is of large size with a high pointed centre, very double; the fragrance is most exquisite and distinct. While it does not bloom quite as profusely as Killarney, it is choicer possibly for that very reason.

Lady Ashtown is a highly desirable pink Rose of excellent color and form, and a free bloomer with long stiff stems, but it has little or no fragrance. However, it is always in bloom and since it has great keeping quality it is one of the best for cut flowers in the house.

Laurent Carle is perhaps the best dark red Hybrid Tea. The shade is a rich crimson, it is large, very double, of good form, and very fragrant. It is a free bloomer and much admired; with every one who loves red Roses this will surely head the list.

General McArthur is another satisfactory Red, a shade more on the scarlet than Laurent Carle but a more profuse bloomer. It is not a large Rose but of very good shape, fragrant, and a good keeper.

Harry Kirk, listed by some as a Hybrid Tea, is really a Tea but of extra strong growth and very hardy. It sends up immense canes and blooms very freely all through the summer and fall. It is one of the best yellow Roses, a deep sulphur yellow, semi-double, and very fragrant. It should be picked in bud form. Mrs. Aaron Ward and Souv. de Gustave Prat are both good yellow Roses. The latter is the most perfect yellow Rose on the list in color, form and keeping quality, but it is a shy bloomer.

Mrs. B. R. Cant should be in every garden; it is a large light pink Tea Rose, tinted with yellow at the base of the petals; a strong grower and a lavish and consistent bloomer giving three full crops of flowers. It is more globular in form than most of the Teas, but a charming Rose with the real Tea fragrance.

La Tosca is a Hybrid Tea strongly resembling Mrs. Cant in color and size but it is a stronger grower and makes a large bush which needs to be severely pruned.

The Rose garden should be suitably framed because of its color display and to shelter the plants from winds

Both of these Roses have the smooth, reddish, almost thornless canes that furnish a perfect long-stemmed Rose.

Lady Alice Stanley, a beautiful pale coral Rose, is one of the best all around Roses. It is a profuse bloomer and very fragrant.

It adds interest and variety to the garden to include a few plants of the different Rose families and a few novelties, indeed every gardener should try out some novelty each year—unless he does he is not a real amateur. Juliet, an Austrian Hybrid of large size, great beauty and spicy fragrance, in color crimson and gold, is always greatly admired, and the more recent introductions of similar parentage — Mad. Edouard Herriot, Mad. Ruau, Soleil d'Or—all showing strange shades of pink and yellow, are worth while. The Austrian Briers, the Moss Roses and the single (Irish) Roses are all beautiful and well worth growing.

Place rose-beds where they will receive the sun as much as possible during the day and although very good Roses may be grown with only two or three hours of direct sunlight, the best results are obtained by placing the beds where they will receive the direct sun the greater part of the day. Roses will not be at their best near any large trees that fill the ground with roots or take the goodness from the soil, but on the other hand a protection from the north winds, either of evergreen trees or a

When cut blooms are the main desire grow the bushes in long narrow beds where attention can be given

building, is beneficial. It may be plainly seen that a strong wind thrashing the delicate shoots and buds will do great damage, so the more the location is sheltered from the wind the more favorable it will be.

An ideal Rose garden would be enclosed on four sides by a brick wall five feet high with an entrance gate on the south side. This would give perfect location for every variety of Rose from the most tender Tea to the most hardy Wichuraiana.

The best soil is a clay loam, although Tea Roses do well in a good sandy loam. Let the beds be three feet wide for a double row or two feet wide for a single row, and as long as convenient. The soil should be taken out to a depth of two feet, the good top soil piled by itself and the poor subsoil taken away. If the

The many single and wild Roses are splendid flowering shrubs and may be planted as individuals in border and lawn

ground is low, drainage must be furnished either by placing four inches of stones in the bottom of the trench or by tile drain pipe. Then the trench may be filled in to within six inches of the top, using a mixture of one third rotted cow manure and two thirds loam and finely cut sods taken from some other location. In making beds three feet wide and fifteen feet long it is well to incorporate in the soil while filling in the trench, a pailful each of agricultural lime and bone meal. The original top soil should now be replaced, using no manure in this part, but a liberal sprinkling of bone meal.

The best time to plant is the last week in April and it is better to prepare the beds in the fall if possible, although it may be done in the spring, in which case they should be thoroughly settled or tamped. Plant Hybrid Teas about 18 inches apart in the row and the rows 10 inches from the edge of the bed, setting the plants alternately. Alternating the plants gives the roots more room to develop. One row should be started nine inches from the end of the bed and the other eighteen inches. Hybrid perpetuals do better at least two feet apart. In setting the plants care should be taken to spread out the roots naturally, firming the soil and setting the plant so that the place where it is budded will be two inches below the surface. It is well to immerse the roots in muddy water as soon as they are taken from the moss in which they are packed and plant as soon as possible. The plants must be pruned severely before planting, all weak branches are better cut away entirely and the others pruned to three or four eyes or buds, taking care to have the highest eye on the outside of the cane. If the eyes cannot be seen, prune to five or six inches.

With beds prepared as above there is manure enough to last several years, but during the growing season they should be fertilized every week, using bone meal and wood ashes alternately. Liquid manure should also be applied every week during blooming periods. This fertilizing pays and must be done if the finest blooms are wanted.

Remember that Tea Roses cannot always be reckoned on to withstand the Northern winter, although the strongest may do so with careful protection. All Roses mentioned must be protected and the second season will show even more wonderful blooms.

Cultivate with a hoe or weeder twice a week, whether the weather is wet or dry, as it is necessary to keep the ground broken not only on account of weeds but also for the best health of the plants. Watering, when necessary, should only be done in the early morning, as watering at night is likely to cause mildew.

Not many remedies are needed to fight bugs. Tobacco dust used every few days will keep down the green aphis. Tobacco, whale-oil soap, Aphine, or some such preparation used two or three times during the season, applied according to directions with a whisk broom, will keep the foliage free from most insects. Rose bugs must be picked by hand and dropped into a small dish of kerosene. These remedies are really very little trouble and their use pays in keeping the foliage in good condition.

By the first week in July after planting in April the garden will be a beautiful spot. There will be Roses of all colors and in every stage of development, and if a hundred or more bushes have been planted an armful of blooms may be expected almost every morning or evening. Pick the flowers early or late and put in water for a time; never in the middle of the day, for the blooms will not then keep.

Solving Puzzles in Peas—ADOLPH KRUHM, New York

[EDITORS' NOTE.—*This is the third article in a series devoted to the most popular vegetables, answering the questions, "Which varieties, and why?" The point of view is always that of the home garden, where quality is the first consideration. An effort is also made to emphasize the importance of thinking of "types" rather than of isolated variety names.*]

IF YOU follow this article you can have peas of highest quality over the longest season. Few vegetables present as many perplexing problems as peas. The reason is two-fold. In the first place, the majority of our peas, either new or old, originally came from England. A certain group of seedsmen there seems to concentrate its efforts on the production of pea novelties. Sutton's and Hurst's, Carter's and Laxton's So-and-So, etc., are familiar names to us. Hardly a year but that every one of these firms introduces one *or more* new kinds and all seemingly grown for special distribution in Uncle Sam's domain.

Secondly, peas show an unusual tendency to change their principal characteristics in adapting themselves to new climatic and soil conditions. Thus we find that, after being cultivated here for a few years, some English peas gradually change their style of vine, the size and color of their pods, etc., and, after a reasonable time, presto, we have a new American pea, acclimated and ready to be distributed under a new name, which the grower feels perfectly justified in giving.

This is no argument for or against these conditions but merely rather an explanation. After several years of study I have come to the conclusion that the only safe thing for the home gardener is to hold on to all the old sorts that are good and try, alongside of them, every year, a few of the most promising novelties. This will bring about a gradual readjustment in the valuation of different new and old sorts. In the end, every home gardener will have to make his own choice. But, as a basis, I submit a list of sorts which, after three years of experimenting under various soils and climatic conditions, I like to call "the hundred pointers."

THE POINTS THAT COUNT

What are the essential requirements? Keeping in mind the desires of every amateur, I have made *flavor* the first requirement, which explains why many otherwise excellent sorts did not find a place among the elect few. Take, for instance, the new English pea Laxton's Superb. It will outyield, under identical soil and weather conditions, such American standards as Thomas Laxton and Sutton's Excelsior by nearly one third and will yield handsome pods, of larger size, fully as early as these two. But the peas are positively tasteless as compared with our acclimated American sorts, and while Laxton's Superb will prove a winner with market gardeners, it will not find favor among home gardeners of more discriminating tastes.

The second determining factor in my selection is *yield of pods* per row. In the home garden, where space is limited, it matters a whole lot whether a row yields seven quarts or ten. It also matters whether these ten quarts are ready within a short time or stretched over a long period, and also whether it comes early or late. Sorts of too long or too late a bearing period are impractical. If a very late variety does not produce its crop within a short time, it makes the space which it occupies unavailable for later crops.

Some good early wrinkled kinds, left to right, Thomas Laxton, Sutton's Excelsior, Gradus

Three later peas of proved merit, left to right, Quite Content, Royal Salute, Potlach

The third factor is the *number of peas to the pod.* The rows may yield ever so many quarts of the best looking pods you ever saw; but would this profit you if those fine four and one half inch pods contain only on an average four or five sizeable peas with three or four dried up baby peas which failed to develop? A striking example of sorts of this kind is Sutton's Discovery. Early in June, this promised to be a record breaker, bearing plenty of large fine pods. In July it proved a dismal failure because its four and one half inch pods rarely contained more than four peas where there should have been seven or eight. Home gardeners cannot afford to take risks of this kind with so expensive a crop as peas.

What makes peas expensive? The space they occupy, the work required, and the time it takes to pick the pods. To grow them and to eat them are pleasures but to pick and shell enough for a family or six before ten o'clock on Sunday morning——!

HOW TO PLANT THEM

But, to our subject! For best development, peas should be planted in rows not less than 2 feet apart for the dwarfs, and 3 feet apart for the tall sorts. To produce enough pods to give you a fair taste during their season, at least six 15-foot rows are required. That means, a space of 15 by 15 feet will be occupied from the middle of April until the end of July, if sorts here recommended are used. That same space, devoted to other vegetables, would yield more per square foot, but—you wouldn't have *peas!*

My system of intensive cultivation is this: Just as soon as 75 per cent. of the crop of the extra early sorts is picked, I pull up the vines and plant other crops. For instance, Prolific Extra Early made room for fall beets on June 25th. Little Marvel, Sutton's Excelsior and Thomas Laxton capitulate shortly before the middle of July in favor of beans which bear just before frost. And the space occupied by the mid-season sorts is used for crops like lettuce and celery with which I take a chance, since they may or may not reach full size before cold weather stops gardening operations.

To be profitable, peas require some care and attention. All sorts, *even the dwarfest,* appreciate some support. Brush affords peas the ideal chance to keep off the ground, but it also makes it easy for the birds to get your first early pods. However, I found that the dwarf sorts especially do much better on brush than if allowed to spread on the ground or if supported by wire or twine. It was a rather peculiar coincidence that the sparrows left alone entirely those rows that were supported by twine trellis.

One more point proven to my complete satisfaction last season is: On rather poor soil peas do much better when grown in a crowded row than in a "sparse" row. To be crowded and to form regular "mats" of vines, six inches wide and growing to regular height seemed to be the peas' happy habit. Half a pint of seed to the 15-foot row proved just about right for the extra early sorts and even the tall, later kinds did not do so well in thin rows as their brothers in crowded quarters. Nor did the yield of the individual plant seem to be affected in any way by the crowded conditions in the row.

Let it be said in connection with these trials that the results recorded were favored by nearly ideal soil and almost perfect weather conditions; toward the end, too much rain, which to some extent prolonged the bearing period. But the early sorts acted splendidly and offered many surprises. I am frank to confess that I changed my mind in connection with the extra early smooth seeded peas. Three years ago I advocated Pedigree Extra Early as

Alderman is one form of the Telephone type, always grows in pairs

Dwarf Champion proved itself to be a high quality late kind

Sutton's Excelsior, just as it grows. Early wrinkled

Prolific Extra Early is adjudged by last year's trials to be the best smooth seeded early pea

Little Marvel has been well named. Pods well filled

the best; to-day Prolific Extra Early is my choice of this type. The extra few days which it takes to bring Prolific Extra Early to the table, as compared with other strains of smooth seeded peas, are well spent in waiting, when the size of the pods, the number of peas per pod, and the quality of peas in the pods are considered.

The early wrinkled class offered some peculiar problems. Finally, in the "process of elimination," I had to argue that, if Pioneer is superior to Laxtonian and Blue Bantam is better than Pioneer, the thing to do is to "boost" Blue Bantam. Since this splendid sort is a better yielder than Gradus (with a dwarfer vine and of about the same season of maturity) it would also make Gradus superfluous, which may or may not prove quite a "shock" to thousands of American planters.

But in peas, as well as in everything else, it will pay us to more rigidly observe the law of the "survival of the fittest." Why should we worry over six strains of Telephone, called Alderman, Boston Unrivalled, Admiral Dewey, Duke of Albany, etc., when there are some elegant sorts with dwarfer vines maturing at about the same time and requiring far less labor, space, and time to mature 75 per cent. of the pods? Home gardeners are the moulders of the seedsmen's opinion. So long as public demand lasts for antiquated sorts, so long will there be seeds to supply it. But let the home gardener analyze clearly in his mind what he wants and when he wants it and the seed-world will gladly give him what he ought to have for perfect success in the garden.

Please note that, with one exception, all the peas bore the cream of their crop a few days apart. This is not altogether the work of chance, but rather of careful calculation based on previous records. Alderman (as a type of Telephone) is rather slow in maturing the crop so that Buttercup was planted to supplement the yield at that particular time. Dwarf Champion is of only fair quality as compared with the rest of the "aristocracy." But I consider it as invaluable to complement Potlach which I think is easily the finest of all late dwarf mid-season peas.

Make allowances in connection with the time required from sowing the seed to the time 50 per cent. of the pods were ready. On lighter soil, containing more humus, and in a more southern latitude, the time of maturity can be beaten by five days to a week. There is also no doubt in my mind but that both Quite Content and Royal Salute will bear longer if given the chance. Are a few additional pods sufficient compensation for the loss of a second crop on the same space?

THE MERIT MEASUREMENT OF PEAS

EARLY SORTS		MIDSEASON SORTS	LATE SORTS
SMOOTH SEEDED VARIETY	WRINKLED SEEDED VARIETY		
† Best Extra Early ‡	* Nott's Excelsior	† Admiral	† Telephone ‡
† Philadelphia Extra Early ‡	§ Little Marvel	† Advancer ‡	† Admiral Dewey ‡
† Pedigree Extra Early	† American Wonder	† Horsford's Market Garden ‡	§ Royal Salute
§ Prolific Extra Early	§ Sutton's Excelsior	§ Alderman ‡	* Bliss's Everbearing
† Ameer	† Gradus	† Boston Unrivaled ‡	* Champion of England
† Alaska	§ Thomas Laxton	† Duke of Albany ‡	§ British Wonder
Smooth seeded kinds are hardier than wrinkled, and so are "first early"	§ Blue Bantam	§ Quite Content	§ Buttercup
	† Laxtonian		* Improved Stratagem
	† Pioneer		§ Potlach
	* Premium Gem		† Sutton's Discovery
	† Laxton's Superb		§ Dwarf Champion
			* Long Island Mammoth

‡ Varieties braced together thus are "too much alike" to be considered separately. † Superfluous. * Obsolete. § Merit (100 pointers)

Be sure to put in brush early; don't wait till the vines actually need it

Give brush whenever possible. Even dwarfs do better thus. Climbing is the pea's happy habit

THE ARISTOCRACY IN PEDIGREED PEAS

VARIETY NAME	SEEDS PLANTED	HEIGHT OF PLANT	PODS		AV. NO. OF PEAS PER POD	50% READY	LAST PICKING DAYS LATER	AVER. YIELD FOR 15 FT. ROW	QUALITY	NOTES
			AV. PER VINE	LENGTH IN IN'H'S						
Prolific Extra Early	April 17th	2½ feet	Five	3	7 medium size	June 20	5	8 qts.	fair	Only Smooth Seeded Extra Early
Little Marvel	April 25th	1½ feet	Eight	3	7 large	July 3	7	8 qts.	excellent	Pods in pairs
Sutton's Excelsior	April 25th	1¾ feet	Six	4	7 "	July 5	4	10 qts.	excellent	Light green pods in pair
Thomas Laxton	April 17th	3 feet	Seven	4	7 "	July 1	6	9 qts.	excellent	Dark green pods in pairs
Blue Bantam	April 18th	1½ feet	Six	4	7 "	July 6	6	8 qts.	excellent	Dark green pods singly
Alderman	April 25th	5 feet	Eight	4½	8 "	July 15	8	8 qts.	excellent	Dark green pods in pairs
Quite Content	April 25th	5 feet	Eight	5½	9 "	July 20	6	10 qts.	excellent	Dark green pods singly
Buttercup	April 16th	2 feet	Six	4½	7 "	July 15	6	8 qts.	excellent	Light pods in pairs
British Wonder	April 25th	2 feet	Ten	3½	6 "	July 20	5	9 qts.	excellent	Dark pods borne singly
Potlach	April 16th	2½ feet	Ten	4½	8 "	July 12	8	12 qts.	excellent	Dark pods in pairs
Dwarf Champion	April 19th	3 feet	Seven	3½	7 "	July 16	7	10 qts.	fair	Dark pods in pairs
Royal Salute	April 25th	4 feet	Ten	4	8 "	July 23	5	9 qts.	excellent	Dark pods in pairs

Making the Best of It—STEPHEN F. HAMBLIN, Massachusetts

II. Plants that will Grow in Heavy Clay

[EDITOR'S NOTE.—*This series of articles, each one dealing with the possibilities of decided soil types, and the plants that will thrive there, is full of encouragement. By giving a little thought and selecting the plants that are adapted to conditions, a really presentable garden is possible almost anywhere.*]

NO PLACE can more tax one's ingenuity as a gardener than a site of heavy clay loam. Always there is something the matter, and nine tenths of the usual hardy perennials will refuse to thrive in it. First of all there is poor drainage, winter and spring the soil is saturated and the plants that survive the winter are sturdy indeed. Then the soil can't be worked until late in the season, it is cold and sticky, and as soon as it begins to dry out it gets full of lumps. You can't manage it by the accepted ways of garden treatment, and by the time it is worked into shape it is as dry as dust on top and solid underneath as a brick. And summer rains and water from the hose soak down about an inch and that is all. Drowned in winter and overbaked in summer, how can a plant get energy for growth and flowers?

DRAINAGE ESSENTIAL

First of all, remove all surplus winter moisture by tile drains below and a slight slope to the soil surface; get rid of standing winter water in any way that you can. Then plow and cultivate the area in vegetables at least two years, add humus, sand, cinders, anything to help keep the surface layer of soil open; but after all you have done the clay is still there, wet and cold in winter, and dry and hard in summer. But not a few plants rather like such obstacles as these and surprise you by crowding out their neighbors. So if you choose carefully you may plan even a successful formal garden on soil too heavy for a farmer to attempt vegetables, even cabbages.

Most of our effort will be for flowering herbs, for shrubs and trees have a better chance to get their roots below surface conditions of soil. But in an extreme case of "heavy" soil even these must be chosen carefully. So for evergreen trees the limit of last endurance is withstood by Arborvitae (Thuya occidentalis) either in the wild form or in its many garden varieties. Large deciduous trees that tolerate a clay bed are the Hickories, especially the Pignut (Carya glabra), Bitternut (C. cordiformis), and Shagbark (C. ovata); several oaks, notably the Swamp White Oak (Quercus bicolor), and Bur Oak (Q. macrocarpa); and for temporary effects several Poplars and Willows, as Cottonwood (Populus deltoides) and White Willow (Salix alba).

Rugosa Rose has many claims to popularity, not the least being its brilliant fruit effects in winter. Grows anywhere

POSSIBILITIES IN SHRUBS

There are many shrubs that have roots which can bore through heavy clay, as many of the Honeysuckles (Lonicera), Viburnums, Dogwoods (Cornus), the species usually carried in nurseries, the native wild Roses, and some of the Spireas, particularly the native Spiraea tomentosa and S. latifolia; but you will have little success with the more refined garden shrubs as Weigela, Deutzia, Hypericum, Philadelphus, and the Heath Family. Even Ramanas Rose (Rosa rugosa) does well in a compact soil, it's only a wild rose and will grow anywhere, for no soil in America is more discouraging than that of its native home. Try its many hybrids if you wish garden roses in summer, and forget your desire for Hybrid Tea Roses. The Memorial Rose (R. Wichuraiana) can penetrate any soil, and so can the Ramblers that have sprung from it (Dorothy Perkins, Lady Gay, Farquhar, Hiawatha, etc.), but Crimson Rambler will quit the job, for its little black roots soon get discouraged.

No evergreen shrubs or perennials can be expected to stand the strain. Oh, yes, Thread Lily (Yucca filamentosa) will stay if you don't ask it to swim every winter. Its roots can burrow through any soil, and though it may not flower as well as in a more open soil it will be a landmark among the sleeping perennials in winter.

YOU CAN HAVE IRIS

In heavy garden soil that is in none too good condition many species of Iris grow remarkably well and hold their foliage all summer after blooming. The Siberian Iris (Iris sibirica) and its white form, and its later sister (I. sanguinea), usually called Iris sibirica var. orientalis, and the white Snow Queen, and the other garden forms of the two species are perfectly contented in soil as hard and dry as a road. These are the most patient plants in the border; nothing ever discourages them; even when mice eat away their crowns in winter they come forth with plenty of new leaves and even a few flowers that season. Some of the other beardless Irises may agree to stay in hard soil, but the lordly Japanese Iris (I. laevigata) simply will not!

The German Iris will grow very well, notably the old sorts, as the "old purple" (I. Kochii), the "old blue Flag" (I. germanica), and the "old yellow" (I. flavescens), though many of the named kinds will stay also. Particular mention must be made of the merits of the Great Turkey Flag (I. pallida) and its fine varieties dalmatica and speciosa. These are the giants among Iris, and the stout leaves are as good as Yucca foliage all summer. The little cousins of the German Iris, the dwarf Iris pumila and the new interregna hybrids, all have the same stout rootstock on top of the ground, and seem to care little as

Of all the conspicuously flowered perennials, the old German Iris leads in general adaptability to poor soils

Among evergreens the Arborvitae is the limit of endurance under adverse conditions, and it comes in many garden forms

to what is below them. A clay soil does not worry them a great deal.

So too the yellow Day Lilies can find sufficient sustenance in an adamantine soil. The old Tawny Day Lily (Hemerocallis fulva) will stay with you forever, but for garden purposes the double form, var. Kwanso, has more lasting flowers and a longer blooming season (and the roots are equally active). The old-fashioned Lemon Day Lily (H. flava) may lose courage a little, but not the Late Lemon Day Lily (H. Thunbergii) whose stately clumps of golden flowers in July are as certain each year as the summer. The other species and varieties may lose enthusiasm, but some of the orange colored forms, as Orange Man, will in June make glorious combinations with the blue of Siberian and German Iris.

BULBS AND TUBERS

Plants with tuberous, bulbous or deep woody roots would seem to be well adapted to keep their hold in heavy soil, but this is not wholly the case. Try the lordly Lily and see how it disappears; even the self-supporting Tiger Lily avoids the clay beds.

Some bulbs that bloom early and ripen before hot weather can be depended upon. Squills will forgive harsh treatment, and Siberian Squills (Scilla sibirica) will flourish in any soil that is not under water in spring. When in doubt, plant Scilla sibirica, for bloom in early spring. Very many little bulbs rot when the soil is heavy and the drainage poor. Crocus, Hyacinth, and Tulip will soon give up, but Narcissus stays longer, particularly Poet's Narcissus (Narcissus poeticus) if you get the older sorts and avoid the double forms. The Double Daffodil (Narcissus Pseudo-Narcissus) will remain after the single Trumpets have retreated.

BLOOMS FOR MIDSUMMER AND FALL

For midsummer bloom when the soil is like brickdust I would introduce our vagrant friends Tansy (Tanacetum vulgare) and Chicory (Cichorium Intybus). They are common enough, but respect their courage and you will discover their beauty again. They have worked many years in this new country and have never organized to demand more rain in August. Chicory can be found with flowers in several shades of blue, and pink, purple, lavender, and white.

In autumn you will get native Asters and Goldenrods, but if you buy plants from dealers get the white Limestone Aster (Aster ptarmicoides) and the Seaside Goldenrod (Solidago sempervirens); they like a firm foundation. I like masses of the big yellow composites, but the many Sunflowers refuse on a clay soil. Try Elecampane (Inula Helenium) for Sunflowers in July and August. Then in September the Compass plant (Silphium laciniatum) and the Prairie Dock (S. terebinthinaceum) of our prairies wave their "suns" six feet above the bold foliage. These three herbs are like trees—as much root as top.

For early foliage effects I am inclined toward May-apple (Podophyllum peltatum) for its big "umbrellas," and the flowers and "apples" are a part of their charm. Low foliage is furnished by the Goutweed (Aegopodium Podograria), a celery-like plant that spreads to fill all spaces. You are more familiar with its variegated form, equally wayward in its habits. A bushy plant with leaves that are good all summer is Amsonia Tabernaemontana.

Some ferns you can keep, but the truly successful fellow is Clayton's Interrupted Fern (Osmunda Claytonia).

Planting a Garden for Autumn—NORMAN TAYLOR, Curator of Plants Brooklyn Botanic Garden

PLANTS IN FLOWER DURING THE SECOND WEEK OF NOVEMBER OR LATER

In The Garden Magazine for November, 1911, appeared a short, rather tentative article of mine, on flowers that bloom after the first frost. So many autumn gardeners have written about these fall flowers, and notes on them have accumulated so fast that the following table has been prepared with the hope of stimulating further interest. All, or very nearly all, the species mentioned were in flower on November 15, 1915, at the Brooklyn Botanic Garden, and some much later than that date.

Now, as to the list itself. By far the larger part are herbaceous perennials which need no very special cultural refinements, except where noted under the column "Remarks." A few of my readers will be pained not to find Chrysanthemum and many Asters in the list. These are so well, almost notoriously, known, that they were omitted to make room for more important things!

Scarce indeed are autumn flowering woody plants, and use must be made of the many beautifully colored fall fruits to make up the deficiency. Barberries, Aronia, Crataegus, and many others may be added to the list given.

In the case of the annuals the list could be lengthened very considerably by careful planning. Before the list must be placed a climbing knot-weed, Polygonum Baldschanicum, which does not seem to fit any of the categories below. It is a free climber, 6 to 8 feet, dies down to the ground each year, and is covered by a profusion of white and rose-colored flower-clusters.

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT	REMARKS
Blue Flowered			
Monkshood	Aconitum Napellus bicolor	2–3 ft.	Better than the ordinary A. Napellus and blooming later. Some white in the flower.
Monkshood	Aconitum autumnale	3–4 ft.	The showiest of all the aconites, but not quite so late as the following. Pure blue.
Monkshood	Aconitum Fischeri	2 ft.	Paler blue than the first two and the latest to flower. Plant about 12 in. apart.
Alkanet	Anchusa myosotidiflora	1–2 ft.	Looks like forget-me-not but with large handsome leaves. Open, sunny places, fair soil.
China Aster	Aster tataricus	5–6 ft.	Often slightly purplish. Very hardy, very variable and very late-flowering. Showy.
Aster	Aster trinervius	3 ft.	Widely branched at the summit, and often with purplish rays. Good for border effects.
Bellflower	Campanula caespitosa	4–6 in.	Makes dense mats and is excellent carpeting species. A white-flowered variety is known.
Bellflower	Campanula latiloba	1–1½ ft.	Grows in dense clumps, but stalks are stiff and erect. White-flowered form is not so late.
Day flower	Commelina coelestis	10–18 in.	Will grow well in shady places. North of N. Y. should be protected in winter. Showy.
Day flower	Commelina tuberosa	Diffuse	Not hardy in exposed places with zero temperatures. Best to cover up with straw, etc.
Larkspur	Delphinium Barlowii	2–3 ft.	Supposed to be a variety of D. hybridum, but much taller and later. A rich feeder.
Sea Holly	Erynyium amethystinum	1½ ft.	Its grayish foliage and bluish-gray flowers made good foils to some violent blues.
Globularia	Globularia maritima	4–6 in.	Sprawls all over the place; a useful rough and ready ground cover. Not showy.
Wild Flax	Linum Lewisii	1–2 ft.	Very branchy. Fine delicate leaves and pale sky-blue flowers are very attractive.
Nepeta	Nepeta Mussini	2–3 ft.	First cousin to the Catnip. The long unbranched racemes showy and usually very late.
Wild sage	Salvia pratensis	1–1½ ft.	Leaves often spotted with red. A good border subject and rather indifferent to luxuries.
Sage	Salvia uliginosa	4–5 ft.	A very striking recent introduction specially useful for the border. Showy.
Spiderwort	Tradescantia montana	3 ft.	Showy and a rich feeder. Its very deep blue flowers best developed in moist places.
Speedwell	Veronica longifolia	1 ft.	Flowered almost to Christmas in 1915. Showy finger-shaped spikes.
Speedwell	Veronica maritima	1 ft.	Nearly as showy as the preceding, and the flowers are deeper blue. Protect northward.
White Flowered			
Christmas Rose	Helleborus niger	1 ft.	Perhaps the latest of all, often poking its way through the snow in sheltered situations.
Waving butterfly	Gaura Lindheimeri	4–5 ft.	The silky fruits are nearly as showy as the profuse flowers. Will stand wind sweep.
Boneset	Eupatorium urticaefolium	2–3 ft.	Snowy puffs of flowers and rather crinkly dark green leaves make this attractive. Native.
False Chamomile	Boltonia asteroides	3–7 ft.	Sometimes slightly violet-flowered. In many catalogues listed as B. glastifolia.
Wormwood	Artemesia lactiflora	2–5 ft.	Fragrant foliage and white cottony flowers distinctive. May be a form of A. vulgaris.
Snapdragon	Antirrhinum asarina	Prostrate	Splendid carpet plant, but should only be used in sheltered places. Flowers rarely red.

PERENNIALS

COMMON NAME	BOTANICAL NAME	HEIGHT	REMARKS
Yellow Flowered			
Chrysopsis	Chrysopsis villosa	1–1½ ft.	Will bloom the first year from seed. Quite hardy and useful in the border.
Coreopsis	Coreopsis lanceolata	18–24 in.	Coarse but covered with bloom up to within two weeks of Christmas in Brooklyn.
Coreopsis	Coreopsis grandiflora	1–2 ft.	Larger flowers than preceding but not quite so late. Heads often 2½ in. across.
Sneezeweed	Helenium autumnale	2–5 ft.	Bushy, fine plant for the border. The leaves are dark glossy green.
Sneezeweed	Helenium nudiflorum grandicephalum	1–2 ft.	Often with a central "cone' that is brown-purple. Rare cases are known where entire head is so.
Frostweed	Helianthemum chamaecistus	1 ft.	In protected places it will be one of the latest to flower. Somewhat woody.
Sunflower	Helianthus orgyalis	8–10 ft.	Striking feathery border plant, more graceful than the large H. anmus and much later.
Heliopsis	Heliopsis Pitcheriana	3 ft.	Like a single sunflower only small. Often splashed with orange; a very showy species.
Hawkweed	Hieracium praealtum	2–2½ ft.	Rather weedy but very useful for ground cover in poor soil and on dry banks.
Toadflax	Linaria dalmatica	2–3 ft.	Branchy and spreading. Native home is southern Europe, so protect north of New York.
Toadflax	Linaria pallida	1 ft.	Somewhat related to our "butter and eggs." Finer, paler and slighter than preceding.
Rest-Harrow	Ononis Natrix	1–1½ ft.	Pea-like flower, not very large or striking but a useful plant in bed or border.
Cinquefoil	Potentilla Nuttallii	1–2 ft.	More sturdy than the spring-flowering sorts. Profuse bloomer and useful for border.
Scabious	Scabiosa ochroleuca	1½ ft.	Large flowers but rather coarse foliage. Very vigorous and difficult to confine.
Red and Yellow Flowered			
Gaillardia	Gaillardia aristata maxima	2–3 ft.	A large and late-flowering form of G. aristata. Very showy and effective in masses.
Horned Poppy	Glaucium luteum	1–2 ft.	Flowers the first year from seed and sometimes used as an annual. Some flowers orange.
Cinquefoil	Potentilla Plantii	1–2 ft.	The showiest of all cinquefoils. Color combination unique and striking. Not bushy.
Purple and Rose-purple Flowered			
Aster	Aster bessarabicus	1–2 ft.	Showy and desirable form, perhaps a variety of Amellus, but taller and more branching.
Bellflower	Campanula Grossekii	2½ ft.	Long racemes of nearly violet flowers very striking. Responds well to good culture.
Willow-herb	Epilobium roseum	3–4 ft.	Almost weedy, but a profuse bloomer and useful as a filler for unlikely situations.
Heron's-Bill	Erodium Manescavi	10–18 in.	Large showy flowers nearly 2 in. across. Deep rich garden soil is best. Ground cover.
Toadflax	Linaria purpurea	1–1½ ft.	As the only purple-flowered toadflax it is welcome. Purple bearded flowers rather showy.
Stonecrop	Sedum spectabile	2 ft.	Erect, rather stiff flowering stalks from a rosette of fleshy leaves. Cymes 2 in. across.
Woundwort	Stachys grandiflora	1 ft.	Very showy and apt to be late-flowered. Flowers more nearly violet than purple.
Stoke's Aster	Stokesia cyanea	1–2 ft.	Nearly purplish-blue in some forms. One of the hardiest and most serviceable of all.
Tinantia	Tinantia fugax	2–3½ ft.	Tender stemmed but quite hardy. Flowers like spiderwort but larger, rather fleeting.
Spiderwort	Tradescantia reflexa	2–3 ft.	Good soil and partial shade the best. Flowers wither almost at once when picked.
Purple Mullein	Verbascum phoenicum	2–3 ft.	Keep out of direct all-day sunlight. Fine for hardy border; effective in mass plantings.
Lilac or Pinkish Flowered			
Winter Savory	Satureia montana	12–16 in.	Fragrant and an efficient ground cover. Can be grown in partial shade. Not showy.
Boltonia	Boltonia latisquama	2–3 ft.	Flowers almost lavender-pink. Bushy, well branched herb good as specimens or en masse.
Aster	Aster sibiricus	1–2 ft.	Mostly useful for the rockery. Will not stand open dry places nor much wind.
Aster	Aster diplostephoides	2–3 ft.	Needs protection north of New York; a treasure from the Himalayan region. Pale lilac.
Larkspur	Delphinium cashmerianum	10–18 in.	Hardy as far north as Mass. Flowers azure blue to pale blue. Beautiful plant.
Sea Holly	Erygium moritimum	1 ft.	Much branched, thick-leaved, ashy perennial; useful for toning down a massed planting.
Lobelia	Lobelia erinus	Prostrate	Useful for edging or carpeting. Dark green ground cover dotted by pale flowers.
Nepeta	Nepeta italica	Prostrate	Also a carpeting plant. Flowers very late and useful for dry banks, etc.
Pentstemon	Pentstemon Smallii	1–2 ft.	Prolongs the pentstemon flowering period by weeks. Very late and showy.
Salvia	Salvia azurea grandiflora	2–4 ft.	High, bushy, striking native perennial with ashy foliage and effective flowers.
Saxifrage Pink	Tunica Saxifraga	6 in.	Makes dense almost moss-like mats which are attractively dotted with small flowers.
Scarlet or Red Flowered			
Jupiter's Beard	Centranthus ruber	1–3 ft.	Blooms during the late summer and up to late autumn. Flowers nearly pure crimson.
Avens	Geum atrosanguineum fl. pl.	1–2 ft.	A splendid double-flowered gardener's form of G. chiloense. Deep crimson flowers.
Rest Harrow	Ononis rotundifolia	1½ ft.	Almost rose color. Will stand the most open and exposed situations. Rank grower.
Mountain-fleece	Polygonum multiflorum	2–3 ft.	Misty rose-red or rarely white flowers in great profusion. Blooms from summer till fall.
Stonecrop	Sedum Sieboldii	9 in.	For rockery or border. Branches and sometimes leaves purplish. Cymes pinkish-red.
Autumn Catchfly	Silene Schafta	Prostrate	As an edging or carpeting plant very useful. Usually not more than 6 in. from ground.
Sc'rl'tWoundwort	Stachys coccinea	2 ft.	Something like sage but brilliant scarlet flowers, extremely showy in mass plantings.

WOODY PLANTS

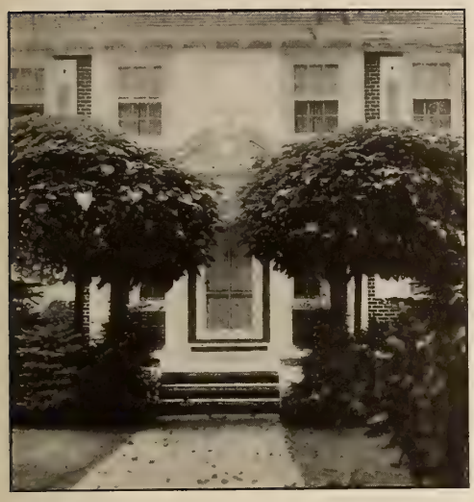
Purplish or Pink Flowered			
Clerodendron	Clerodendron trichotomum	4–7 ft.	North of New York apt to winter-kill. Very fine and showy. Flowers in large clusters.
Heath	Erica ciliaris	10–20 in.	Makes splendid massed plantings. Flowers spike-like and borne in great profusion.
Cornish Heath	Erica vagans	2–3 ft.	Much taller in England. Hardy here to New York, in sheltered places north to Boston.
Bush Clover	Lespedeza Sieboldii	2–3 ft.	Really a half-shrub and often winter-killing. One of the freest and best bloomers of list.
Variously Colored			
Baccharis	Baccharis halimifolia	4–6 ft.	Showy *white* fruits cover the shrub profusely in autumn. Good for seaside planting.
Baccharis	Baccharis glomeruliflora	4–6 ft.	Similar but more foliage is evident. Flower heads solitary not quite so *white*. Hardy.
Buddleia	Buddleia variabilis	3–4 ft.	By constant cutting of the *heliotrope* flowers the blooming season may be extended.
Blue Spiraea	Caryopteris mastacanthus	3–5 ft.	Showy and pale *blue;* foliage is most effective. Better to cut back each year.
Witch Hazel	Hamamelis virginiana	6–8 ft.	Flowers while leaves are falling. In masses the *yellow* flowers tinge the landscape.
St. John's Wort	Hypericum prolificum	2–3 ft.	Thickset, bushy. A profusion of *yellow* flowers nearly covers the bush. Often dies back.

ANNUALS

Yellow Flowered			
Cosmos	Cosmos sulphureus	4–7 ft.	Apparently parent of all yellow forms. Rank grower and not particular about soil.
Erysimum	Erysimum Arkansanum	2 ft.	Star-like flowers. Will grow well in dry sandy places and while rather coarse is useful.
Reseda	Reseda crystallina	2 ft.	The deep yellow flowers in long racemes. Native of Canary Islands. Effective in masses.
Blue Flowered			
Ragged Sailor	Centaurea cyanus	2–3 ft.	The best all-around form is Emperor William. Fine old garden favorite.
Closed Gentian	Gentiana Andrewsii	18 in.	Really a biennial. Best grown in moist situations. Fringed Gentian very hard to grow.
Variously Colored			
Cobea	Cobea scandens	Climbing	An annual vine with splendid showy *purple* flowers. Useful for a temporary covering.
Spider plant	Cleome pungens	4 ft.	Perhaps a biennial but flowers from seed in one year. Flower curious and *rose pink*.
Cosmos	Cosmos bipinnatus	5–8 ft.	Variously colored and most prolific. Bloomed in Brooklyn until December 10, 1915.
Loasa	Loasa americana	1–1½ ft.	Almost *brick color* flowers and curious stinging foliage. More curious than beautiful.
Lopezia	Lopezia coronata	2 ft.	Bushy with great profusion of *lilac* flowers with reddish markings at the base. Showy.
Malcomia	Malcomia littorea	Prostrate	Good ground cover with attractive *white* or *lavender pink* flowers. Protect in the North.
Sea Thrift	Statice sinuata	1 ft.	*White* flowers from a cushion of dark green leaves. Flower stem curiously winged.

Practical Plans for the Home Grounds—RUTH DEAN, Landscape Architect

IX. Foundation Planting for the Suburban Lot



A good example of overbalanced vegetation due to the selection of unsuitable plants

THE house swallowed up in evergreens is growing to be too common a sight in present day planting not to call for a protest. Nurserymen properly enough suggest to the householder that he should have planting about his house which will stay green all winter, and the prospective purchaser seizes upon this as a good idea, and repeats it to his friends, until it becomes thoroughly fixed in his mind and he is convinced of its soundness.

Now, it is perfectly true that some bushes which do not lose their leaves with the first departing swallow are desirable. But it is just as true that not all the planting about a house should keep its summer appearance all through the winter, for this is unnatural and artificial and will inevitably look stiff and inartistic. Moreover, there are other colors, such as red and yellow, quite as cheerful in the winter landscape as green, and certain trees and bushes are as attractive minus their leaves, as they are covered with foliage. To the latter class belong trees with such interesting habits of branching as those possessed by the Hawthorn, Dogwood, Black Locust and Linden; and to the color group the red berried and red and yellow twigged shrubs. These deciduous shrubs with their graceful spreading branches are needed to tie together the definite forms and distinct outlines of the evergreens.

There is nothing quite so stiff and bumpy as the collection of evergreen, yellow and blue pyramids and balls one sees disposed in awkward masses about the base of a house, nor anything as somber and damp looking as solid banks of Rhododendrons "masking" its foundation.

The idea of foundation planting is not to "mask" (for there is nothing about an honest foundation wall to be concealed), but to *tie the house to its surroundings*, to give it an effect of sitting comfortably on its green lawn.

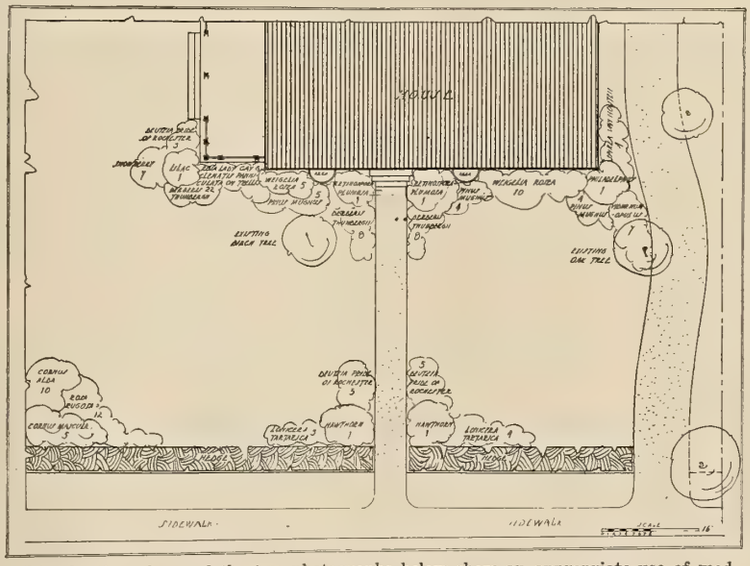
In order to accomplish this the planting must have some semblance of belonging to the country round about, of fitting into the landscape, and certainly nothing could look more exotic than all the little stiff vari-colored evergreens and Japanese red maples which constitute the stock foundation planting.

But these, bad as they are, have one excuse in their dwarf size, which another type of evergreen planting lacks. I mean the planting which consists of such forest trees as those shown in the picture to the right.

What happens when forest trees are used to "support" the corner of the piazza

It is eagerness for a quick effect or else ignorance of the habits and character of the trees, which leads most people into the incongruity of planting huge trees such as Douglas Spruce, Hemlock, Colorado Blue Spruce, and White Pine, around the foundations of their houses. These trees belong out in the open where they can spread their branches and stretch their limbs.

The other two photographs accompany the planting plan which shows the foundation of a house planted with a mixture of two of the lower growing evergreens and some deciduous shrubs and is designed to look well all the year round. It is a planting not half so costly as the others and yet in January it presents just as pleasing a picture, and five years from now it will not have overgrown the house or died from lack of room to expand properly.



This planting plan and the two photographs below show an appropriate use of moderately growing shrubs, etc., which will not bury the house itself

A SHAKESPEARE GARDEN PLAN

BY JENS JENSEN, *Landscape Architect*

1616 *Prepared in Coöperation with the Shakespeare Tercentenary Celebration Committee of the Drama League and Officially Endorsed* 1916

AN EFFORT to restore the Elizabethan garden at this period would be but an antiquarian affectation, and of no real value. The extremely geometrical figures or "knots" would, indeed, fit poorly into our free scheme of modern day gardening, and so a Shakespeare garden becomes nothing more than the expression of a sentiment in honor to the memory of the great poet. The writings of Shakespeare are remarkable from the garden viewpoint, because of the omissions of most of the more common showy flowers of his day; hence, the accompanying plan is more suggestive than detailed.

At the Convention of the Drama League of America, held in Philadelphia in April, 1914, a national movement in commemoration of the tercentennial of Shakespeare's death was inaugurated, with Mr. Percival Chubb of St. Louis as Chairman of a National Committee, to prepare suggestions for suitable celebrations.

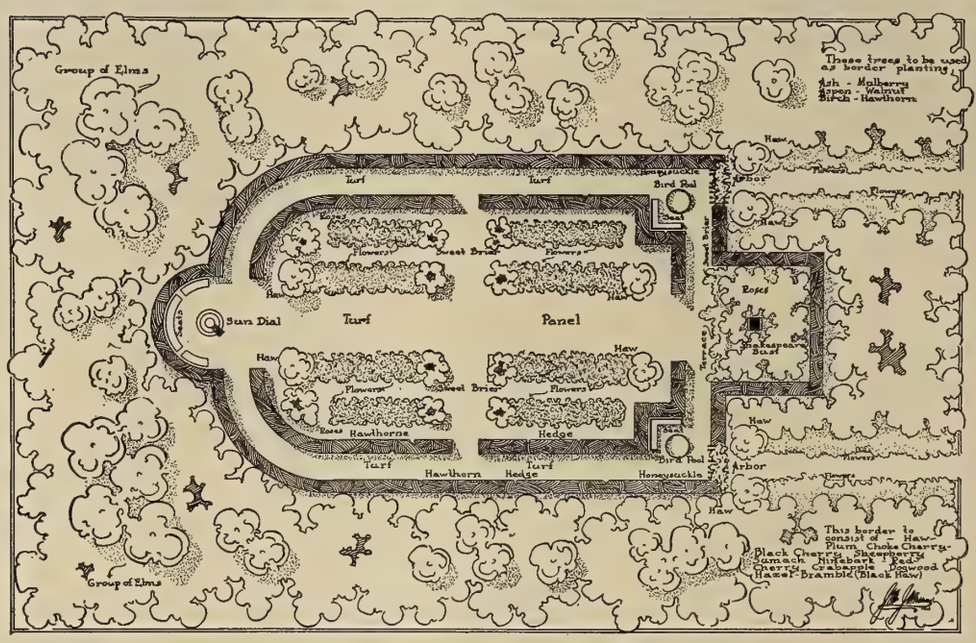
Among the possibilities for various forms of celebration, the widespread interest in gardening was looked upon as an opportunity to propose the planting of old English gardens with the flowers named in the plays of Shakespeare. A little booklet, entitled "Shakespeare Garden and Wayside Flowers," accompanied by a selection of appropriate quotations, compiled in England, gives a list of sixty-nine flowers mentioned by the poet. Not all of these could be grown in the United States. Some are deemed undesirable pests that would overrun a garden; hence this list has been reduced and only those flowers which will insure beauty and will afford consecutive bloom have been introduced into the accompanying plan.

A number of masques representing the flowers of Shakespeare have been prepared and may be obtained through the Drama League. One called "The Lover's Garden" is suited to schools and clubs.

In explanation of the scope of the plan here given Mr. Jensen writes as follows:

It was rather a difficult task—at least it so appeared at the start—to devise a plan for a Shakespeare Garden. There was really nothing tangible to get hold of, no plans to follow. Shakespeare left no garden plan, not even the description of a garden to follow. The only material available of Shakespeare's times is what Lord Bacon in his essay entitled "Of Gardens" has left in a description of the way he would like to design his garden. It was therefore Bacon's idea, or rather the spirit of it, that gave the first constructive thoughts to a Shakespeare garden. Another influence that had a great deal of weight in the final plan, and really determined one of the dominant features of the scheme, was our own gardens from colonial days. Added to this combination were some minor details that have found a place in the modern garden.

The plan, as it was finally designed, consists of a hedged-in garden surrounded by a forest border—a sun opening in the woods, as it were. The garden is reached through this forest border which here represents shadow and silence. A Honeysuckle arbor forms an entrance to the garden proper. The first thing to greet the visitor is the bird pool—that is the name given it on the plan. This pool expresses purity; it is the spring of eternal youth. It should be of the simplest design with no concrete visible. The edge of the pool might be built of thin weathered limestone slabs showing the natural stratification of the limestone rock with Virgin's Bower rambling over the ledge, and perhaps a few clumps of Violets, a colony of Ferns with prehistoric associations, and a bit of Rush or Horsetail.



Mr. Jensen's suggested plan for a Shakespeare garden. See text for explanation. The flower beds may be planted with the following: Aconite (Monks Hood), Balm (sweet), Broom, Carnation, Cockle (corn), Columbine, Cowslip, Crowflower (Ragged Robin), Crown Imperial, Daffodil, Daisies (pied and white), Eringoes, Flax, Flower-de-luce, Harebell or Wild Hyacinth, Iris (blue), Larksheels or Delphinium, Lavender, Madonna Lily, Mallow, Marigold or Marybuds, Marjoram (sweet), Pansy, Peas, Pinks, Peony, Poppy, Primrose, Rue, Violet, Wormwood (Diana's Bud). A small border may be worked up with the following: Aconite, Columbine, Daffodil, Sea Holly, Flax, Iris, Carnation, Primrose, Lily, Marigold, Pansy, Pinks, Peony, Rupe, Violets, Wormwood.

On either side of the garden is a path flanked by Hawthorn hedges. From this path the shrine of the garden is reached.

Flowers as they are mentioned in Shakespeare's works, each one expressing its own beauty as its blossoming time appears during the season, are grouped together in a somewhat informal way in eight beds, separated by grass paths. It terminates in a slightly raised square in the centre of which, surrounded by Roses, stands a bust of Shakespeare.

The flower borders are broken by Brier Roses and Hawthorns so as to give the garden an air of unrestraint.

The woodland border surrounding the garden, as well as the garden itself, contains nothing but the plants that are mentioned in Shakespeare's works, and only such varieties as will lend themselves to this scheme from a practical standpoint.

The garden at Shakespeare's home, Stratford-on-Avon, England, as it is to-day

Planting with a Real Purpose—STEPHEN F. HAMBLIN

WHAT YOU MUST KNOW BEFORE YOU CAN BUY INTELLIGENTLY—HOW TO SELECT THE PROPER TYPE OF PLANT TO FIT THE PLACE—FIGURING COSTS

PLANTING gives the finish to all garden construction. It has little consideration in the preliminary study for arrangement, as even the entire design of the garden may be decided upon regardless of the plants to be used; it has no relation to the engineering involved; and may be one of the smallest items of expense in construction. Yet it may dominate the design, cause expensive construction, and the item of planting may exceed that of roads or structures. Further, good entire design of the garden may be design or of construction, and make great show at little expense; and equally, a poor use of plants may seriously mar a good design and outweigh a careful workmanship of construction. As it comes after the general considerations it takes on undue importance in the eye of the average person.

In a sense, the planting is like the cover of a book, or the clothes a man wears. Its place is unique in landscape construction; it is the most elastic of the items to be considered. It is neither unimportant nor all-important, but the obvious test of good work.

It should enter to a certain degree into every consideration of modifications of the landscape, and while it may be decided after the work is well under way, it should influence all plan making from the very start. So far as I can, for the sake of simplicity, I shall consider it by itself as apart from design, construction, and costs.

The first general decision must be made as to amount. There are the two extremes. The simplest solution is to reduce all planting to the minimum, and there are places where this is desirable, especially in city conditions. Houses, trees and cars can't occupy the same ground at once, and it is well that most foliage be omitted. A city is not a forest nor a lawn. But the grounds about many homes, churches, and municipal buildings are as bare as a barn or a bald head, and about as ornamental. Lack of ornamentation is not beauty, and most people who think at all about the matter will admit that a certain amount of trees, grass and flowers is desirable wherever we go. Architects' show plans always have "foliage." Of what this may consist is a matter of taste and training.

The other extreme is a wealth of

EXAMPLES OF PLANT TYPES

TREES	EXAMPLE
Height	
tall—100 ft.	Elm, American
large—60 ft.	Linden, American
medium—40 ft.	Apple, Crab
small—20 ft.	Dogwood, Flowering
Leafage	
early in leaf	Larch
late in leaf	Catalpa
shade dense	Horsechestnut
shade light	Locust
evergreen	Pine
autumn coloration	Maple, Red
large	Catalpa
small	Willow
hang late	Oak, English
drop early	Sycamore
cut	Maple, Weir's
colored	Beech, Purple
Habit	
narrow	Lombardy Poplar
spreading	Oak, White
irregular	Apple
shrubby	Hawthorn
peculiar	Beech, Weeping
Growth	
quick	Poplar
slow	Tupelo
easily moved	Willow
difficult to move	Hickory
hard wooded	Walnut, Black
soft wooded	Willow
poor soil	Birch, Gray
rich soil	Magnolia
wet soil	Maple, Red
dry soil	Locust, Black
insects and disease	Cherry
free from disease	Ginkgo
Use	
shade	Maple
flowers	Horsechestnut
fruit	Apple
bark	Birch, Canoe
specimen	Beech, Purple
forest	Oaks
lawn	Magnolia
windbreak	Norway Spruce
hedge	Arborvitae

SHRUBS	EXAMPLE
Height	
treelike (over 15 ft.)	Redbud
10 to 15 ft.	Viburnum
6 to 8 ft.	Rosa rugosa
3 ft.	Japanese Barberry
trailing	Dewberry
Leaves	
evergreen	Mountain Laurel
large	Hydrangea
small	Barberry
Leaves—Continued	
colored	Purple Barberry
fragrant	Sweet Fern
cut	Cut-leaved Hazel
bark colored	Red Osier Dogwood
Flowers	
white	Spirea Van Houttei
blue	Rose of Sharon
yellow	Forsythia
red	Weigela
fragrant	Honeysuckle
early	Forsythia
late	Witch Hazel
fruit	Barberry
Soil	
sandy	Sweet Fern
peat	Rhododendron
very dry	Sumac
very wet	Pussy Willow
standing water	Buttonbush
full sun	Spireas
shade	Blueberry
Care	
no pruning	Hawthorn
much pruning	Hydrangea
insects and disease	Rose
Use	
screen	Privet
hedge	Barberry
undergrowth	Hazel
specimen	Rose of Sharon
flower mass	Spirea Van Houttei
lawn	Weigela
rock garden	Hypericum
waterside	Elder

VINES	EXAMPLE
Habit	
clinging	Boston Ivy
twining	Clematis
scrambling	Rose
Size	
tall	Boston Ivy
low	English Ivy
vigorous	Actinidia
slender	Clematis
Leaf	
large	Dutchman's Pipe
small	Wisteria
evergreen	Evonymus radicans
Use	
buildings	Boston Ivy
walls	Virginia Creeper
fences	Grape
trellis	Clematis
flowers	Wisteria
thickets	Lycium halimifolium
ground cover	Hall's Honeysuckle

PERENNIALS

Heights, from creeping to 10 ft.

Months of Bloom (from March to October)

Color of Flower

[The most important lists. Many have been given in earlier issues of THE GARDEN MAGAZINE.]

Growth	
long lived	Peony
transient	Foxglove
weedy	Wild Geranium
spreaders	Golden Glow
tender	Canna
bulbous	Lily
deep rooted	Hollyhock
shallow rooted	Coreopsis
shrubby	Peony
needs staking	Larkspur
raised from seed	Larkspur
hold seed all winter	Siberian Iris
Soil	
aquatics	Water-lily
stream margins	Caltha
bog	Pitcher-plant
wet meadow	Joe-pye-weed
moist woods	Lady's Slipper
dry, open woods	Asters
dense shade	Plantain-lily
poor soil in sun	Butterfly-weed
salty soil	Marsh Goldenrod
Foliage	
evergreen	Yucca
effective after bloom	Peony
ragged after bloom	Hollyhock
bold leafage	Rhubarb
finely cut foliage	Meadow-rue
aromatic	Lavender
resist autumn frosts	Phlox
Flowers	
very large	Hollyhock; Peony
inconspicuous	Ferns
massed above leaves	Iris
fragrant	Pinks
very early	Siberian Squills
very late	Chrysanthemums
long bloomers	Shasta Daisy
short bloomers	Oriental Poppy
Use	
border	Iris
cut-flowers	Peony
massing	Phlox
shrubbery	Bulbous Plants
formal garden	Iris
rock garden	Creeping Phlox
wild planting (see Soil)	Native Plants
specimen	Plume Poppy
special uses, etc.	[spreads]

COST DATA FOR ESTIMATING

Deciduous trees, from 5 to 8 ft. (usual nursery size of the species)	$0.75 to $1.00 each
Deciduous trees, 10 ft. or more (not "specimen")	1.50 to 2.50 each
Deciduous trees, rare kinds, from 3 to 6 ft. (of good size)	2.00 to 5.00 each
Evergreen trees, with ball, 2 to 3 ft. (smallest planting size)	.75 to 1.00 each
Evergreen trees, with ball, 4 ft. or more (not "specimen") at least	1.00 per ft. in height
Evergreen shrubs, with ball, 18 in. (small plants)	.50 or more each
Evergreen shrubs, with ball, 2 ft. or more (large plants)	2.00 to 5.00 each
Common deciduous shrubs and vines, 2 to 3 ft. (average small size of species	.35 each
Common deciduous shrubs and vines, 4 ft. (larger size)	.50 each
Azaleas, Hybrid Roses, and other special shrubs (usual small size, or 2-year)	.50 each
Azaleas, Hybrid Roses, and other special shrubs (2 ft. or 3-year)	.75 to 1.00 each
Perennial herbs, common varieties, field grown	.15 each
Herbs, less common sorts and named varieties, field grown (2-year)	.20 to .25 each
Peonies, rare species, and novelties (2-year size)	.50 to 1.00 each

plants wherever the space offers. There is no virtue in cramming a place with all the plants of which you are fond, making it a thicket or a museum of freak plants. If you have no sense of restraint as to what to put in you are not a garden builder, but a nurseryman. One tree in its proper place is worth a dozen equally good ones crowded into the same space.

In the middle course between the two extremes is safety; this involves far more than a consideration of the plants themselves. The test is "fitness" of the planting to its surroundings. This varies with the centuries, the topography and climate, the national life, and individual taste. From these arise the garden types—formal, natural, Italian, Japanese, rock, marsh, "wild," etc.—considered from the point of view of the plants used. Each arrangement has its uses.

With the esthetic sense of "fitness" is inseparably connected the aspect of physical "luxuriance." We insist that growing things look healthy as well as well-placed. Even a luxuriant field of corn gives a sense of esthetic satisfaction that a most expensive formal garden may not have. This luxuriance comes from the choice of material used, the care with which it is planted, and then the upkeep of the work.

Let us choose our materials. While the plan for arrangement is being made, decide on the tree and flower types to be used. Think first in *types* rather than in individual plants. If a tree, is it to be tall or low-branched, for shade or flowers, with heavy or light foliage, etc.? Merely because I like a certain tree it does not get on my planting plans, and often I use trees that personally I don't care for. If a shrub, is it to be evergreen or not, for flower, fruit, or form, for screen, specimen or ground cover? And how are the herbs to serve in the landscape, by their flowers, foliage, or roots? Specimen lists are here given.

Having an image of the type forms needed, lists from which to choose, and data as to the requirements of the various species, then consider the soil in its relation to the plant growth, the climate and exposure, the effect to be produced, the purse of the client, the care to be given in the future, etc.

Soil conditions come first usually. Select the plants that will endure the conditions.

The future care should greatly modify the planting—will there be an intelligent gardener in charge or will Nature care for it? The best thought-out planting can "run to seed" and be "seedy" if left to itself. Use no soft Dogwoods or the Rose family (except Spiraea), unless some one will spray for scale. Deutzia must have the dead twigs cut out every year, etc. Yet there are plenty of plants that will "thrive under neglect."

Having then considered our materials, and the practical and esthetic limits placed upon their use, we make a list of the plants that would fit these conditions. We are now ready to think of arrangement in detail. For every planting should have a reason for its being, and not "growed" like Topsy. Every plant should speak for itself, and not require our arguments in defense of its location. Are we planning for immediate or future effect? In most cases we strive to take care of both, and the problem is made more complex.

Every planting is different in its final arrangements, but the several theories of plant arrangement we can touch upon.

The *severely simple*, "somebody lives there," a simple grouping of simple types of plants for simple places, mere touches of vegetation to afford relief. The suburban lot may be so treated.

Special effects, of form, foliage, formality, season, color, etc. Here the plants are grouped to give certain definite effects to carry out the design; much of the usual planting is mostly of this order.

Botanic relationship, a study in the relation of form, foliage, etc., of various plants related botanically. The eye naturally sees the differences and likenesses of a group of the various Viburnums, Spireas, or other genus. This idea of plant relation may be introduced in very restricted areas, but a large estate will allow its greater development. It has nothing to do with a botanic garden.

Ecological, or plant affinity groupings. A placing together of plants that are found together in Nature. This is most useful in "wild" planting. A group of Sumac, Sweet Fern, Asters and Goldenrod has an artistic merit to our eye because we have seen them growing together on many New England hillsides. Such combinations are endless.

Well-developed nursery stock with straight stems and good root systems is always the cheapest and the best. No plant was ever too well grown. For immediate finished effect near the house the very best of plants are none too good. Put the money allowance into quality rather than in quantity, for a few well-developed plants are of far more value than a lot of skinny ones.

While estimating the quantities comes the question of distance apart. For immediate effect the plants should nearly touch when in leaf. This means that the usual nursery grown shrubs will be placed 3 to 4 feet apart, and that is altogether too closely for the good of the plants five years hence. We suppose that the gardener will year by year take out the crowding plants in such a way that the mass effect will be little changed. But suppose that nobody thinks of relieving their congested condition; then mass plantings for immediate effect is bad business. Given time one Tartarian Honeysuckle will occupy the space formerly taken by ten, and be more healthy than they could ever be. Suppose that we plant for the future comfort of the plants, how far apart? Many factors must be considered besides the present size—the soil in relation to the growth, the effect desired, the foliage about the planting, the size of the group, the care to be given, and the vigor and ultimate normal size of the species. The final spread of many woody plants will be much as the

Planting gives the finishing touches to garden making, and in proportion to its being well or poorly done lies much of the ultimate success of all our work

height as given in catalogues and books. Take the height ultimately to be attained by the plant as your measuring stick in most cases, but consider the other factors.

This means that the larger oaks and elms may be placed 100 feet apart, trees the size of apple require 40 feet for normal development; plums, 30 feet; Lilacs and other small trees, 15 feet; Spiraea Van Houttei, 10 feet; Berberis Thunbergii, 5 feet; Spiraea japonica, 3 feet; Peonies, 2 feet; Spiraea Anthony Waterer, 2 feet; Phlox and large perennials, 2 feet; most perennials, 1 foot; and small bulbs, 6 inches or less. Woody plants placed too closely will shoot upward or become permanently dwarfed; herbs will spread until all the ground is taken by their root and their tops crowd, then they lose vigor and must be reset. The open spaces between plants set for permanent effect can be taken up temporarily by the interplanting of other species.

Soil preparation affects vitally the welfare of the planting. The soil preparation must be *thorough*, we are not setting posts. In many places it should cost more to get the ground ready than to buy the plants; usually it should cost at least a dollar to plant a street tree. I can prepare a bed in five hours or five days, and it will look the same when the plants are set, but there will be a difference two years hence!

Fall or spring planting depends on species, soil, climate, and other factors. Thorough workmanship is more important than season.

Shrubs and herbs may even be moved from a nursery in midsummer, if plenty of water is at hand. Spireas don't mind a shift any day in the year, but Roses and Hawthorns will surely die if moved when in leaf. Success in out-of-season planting depends both on the care taken and the adaptability of the species.

Some gardens are fussed with too much. A great many plants "thrive under neglect." The Ailanthus may start the list of the large trees; the flowering Dogwood of small trees; Van Houtte's Spirea of large shrubs, Japanese Barberry of low shrubs; the Day-lilies are enduring herbs, and Periwinkle is a permanent ground cover. They always look healthy though forgotten; they accomplish the impossible in the garden; they endure wear, neglect, poor soil and insects. The list of such permanent plants is longer than at first would appear.

To estimate the cost of work the figures shown in the table on page 170 may be helpful, but remember that cost in any work depends first on local conditions, then on management.

The amateur garden builder more frequently buys his different plants singly or in quantities less than ten of a kind, at retail rates. If illustrated retail catalogues of nurserymen are not at hand a different estimate for the cost of stock is needed. While prices of single plants have a wider range than for large quantities, we might use the following as average values, bearing in mind that common plants and those easily grown are cheaper than rare plants or those of difficult culture. For instance, a Magnolia costs four times as much as a Lombardy Poplar of the same height, Privet is one of the least expensive of shrubs (it is easily raised), and named varieties of Iris, Phlox, Larkspur, etc., may cost nearly twice that of the old-fashioned sorts. Height is only one of the factors in judging the value of a plant, but it is the best general standard.

Both cheaper and more expensive plants in these sizes can be bought, and actual comparison will show the difference to be real. "Specimen plants," those larger than average nursery size, can be had at about double the above prices. These are for immediate effect.

Pin-Money Crops for the Home Gardener—F. F. ROCKWELL

Quality Celery for Local Markets

THE points about celery of interest to the man who expects to dig in his garden this year in search of a few extra bucks are, that *quality* is the determining factor in its value, and that when it comes to quality the odds are in his favor as compared to the commercial grower whose product has to be in transit several days, and possibly pass through several hands, before it is offered for sale. The fact that celery is "in season" for a long time—from late August until Christmas—makes it a crop which the grower may feel reasonably sure of disposing of profitably, if he is confident that he can grow it and blanch it successfully.

PRACTICALLY any small city or large town has a good home market for high quality celery. The crop moreover is one of the few things that can be marketed to advantage in small quantities, and which dealers prefer to buy of local growers. Though celery is not as "perishable" as most vegetables, nevertheless its "quality" deteriorates rapidly in transit and handling. These things work in favor of the local grower. On the other hand, he should ascertain the form in which celery should be put up for the market which he expects to supply.

The blanching is really part of the culture and continues either in the field or where the celery is stored until the time the stalks are ready to take to market. They should be trimmed, cleaned and washed carefully before bunching. The roots are cut off in such a way that a small part just below the crown of the plant is left to hold the individual stalks securely together. The outside leaves and any which may have been damaged through cultivating or blanching are removed.

In all probability, one or two live dealers will handle all the celery you can produce, and it is best when you have satisfied them that you have an article of superior merit, to concentrate your distribution in this way, giving them more of an incentive to push *your* stuff by personal recommendation to customers, who will return them for it knowing that they cannot get it elsewhere. Word of mouth advertising is always the best kind; but the only way to get it is first to achieve top quality in the thing to be advertised.

IF YOU are satisfied from experience that you can get prime *quality* as well as quantity, and there is a good local market, there is probably no other crop which will be more profitable. With modern methods of blanching at least twice as many plants can be grown on a given area as are ordinarily grown in field culture. But I have one word of warning to insert here: Do not attempt to grow celery for cash, even on a small scale, unless you are sure of an abundance of water to carry the crop through the dry period which in most localities is fairly sure to hit the crop in the late summer or early fall. Celery, unlike onions and some other crops which can be used to produce profits in small gardens, requires a great deal of moisture right up to the time for harvesting or storing, as the case may be. One good celery crop will pay several times over for the slight cost of a modern irrigation system. Don't court failure by attempting to get along without it. It is best, though not absolutely necessary, to have your irrigation system ready before planting.

Where space is limited, by combining the very early and the late crops, you can practically grow two crops of celery on the same ground. To do this most successfully, the first crop should be produced as early as possible Use the earliest varieties for the first crop, starting the seeds early under glass, so that there will be strong, rugged plants for setting out in May or early June. The importance of getting the best plants possible cannot be overemphasized. Growing the plants, in fact, is nearly a third of the work of growing the crop; and the blanching and preparing it for market is practically another third; these facts should be kept in mind by the beginner if he is tempted to base his calculations on the work that may be before him in taking care of the plants *in the garden*.

The first sowing should be made in late March or very early April; Golden Self Blanching is the most popular and, for all-round purposes, the best extra early variety. A new early variety, Easy Blanching, is similar and the small grower would do well to try out some of this in comparison with Golden Self Blanching, giving both varieties the same treatment and noting the results. Get celery seed of the very highest quality; this is even of greater moment with celery than with most other vegetables, as the dreaded "hollow stalk" is the result of poor "strains" of seed, which in germinating quality may be all right.

THE seed is very fine and rather slow to germinate. The utmost care should be taken in starting it. "A strong stand" is important not so much because of the additional plants secured as because the seedlings will be more rugged and capable of developing into good, stocky plants. The little seedlings will remain longer in the soil before transplanting than those of cabbage or lettuce, so all pains should be taken in preparing it, a very light, friable compost being used. Soak the seed for twenty-four hours or more before sowing. Germination will then be not only quicker, but more certain. I have had good results from seed that had been kept moist and in a warm place until it had actually begun to sprout; but it is sufficient to have it thoroughly swelled. It may be rolled in dry dust or mixed with about an equal portion of light soil to facilitate sowing, as otherwise the seed will cling together in "gobs." Nothing is gained by sowing too thickly. One gets many more plants, but many more have to be discarded and those which are left are not as good as they would have been if they had had more space. Give the seed pans plenty of warmth to insure a good quick start. Keep the little seedlings rather cool; nothing is to be gained by forcing them, and there is danger from "damping off."

If the soil is rich they will make a fairly rapid growth, and must be given plenty of light and fresh air. Take care in watering them not to mat them down. Sub-watering, by placing the flat in a larger pan, is the best method, but if that cannot be employed use a small watering can with the spray removed, and let the water flow over the surface and soak in until the whole is thoroughly saturated, without wetting the foliage at all.

As soon as the little seedlings are large enough—when there are three or four "true leaves"—transplant again into rather deep flats, using a very rich compost. A hundred and twenty-five or even a hundred and fifty plants are often put in a flat, but in growing your own plants, particularly for small garden conditions, you will get better results by reducing this number to a hundred or to even fewer than that. There is no danger of having the plants too big, provided they are strong and stocky. The roots will be found to be very long and thin; trim them back severely. Usually the tops also may be kept cut back a little to advantage, as they then are easier to handle, and the plants will not be injured in the slightest.

After transplanting, be careful not to overwater, as until the little plants become reestablished they will not be able to use nearly as much water as they needed previous to transplanting, and a soil too wet will cause a great many of them to "drop out." Water the soil thoroughly a day or two before transplanting, give a light sprinkling afterward, and then keep shaded for a few days, during which time they should need but one careful watering at the most. Set out the young plants (if started indoors) in the frames as soon as possible.

FOR the later crops, one of the newer "green" or winter varieties should be used. I have found nothing more satisfactory than Winter Queen, unless it is the new Fordhook Emperor, which I tried last year for the first time. It is an excellent sort with the thickest and most crisp and brittle stalks of any celery I have grown.

Start plants for the late crop under glass in March or in April, or where the climate permits, sown outdoors in a sheltered spot, or in a coldframe, if one is available. A spent hotbed from which the spring stuff has been removed will be just the place in which to transplant the plants, provided the facilities for watering are adequate. A hotbed, of course, will dry out much more quickly than will the soil in the regular garden adjacent to it. In sowing directly in the soil, prepare the latter very finely and firm it before planting, by going over it with a light roller or by gently patting down with the back of a spade. If the seedlings are thinned out to a proper distance, or cut back two or three times to induce stocky growth, transplanting may be dispensed with. But usually transplanting will give enough better plants to be well worth while. In either case they should be watched carefully, all weeds removed as soon as they appear, and the ground kept worked and loose between the rows. The rows, if the plants are not to be transplanted, should be nine inches to a foot apart.

For winter we select the newer green kinds because they have keeping qualities

There are several systems of planting and blanching, and the ultimate aim of the small grower, of course, is to get just as many good stalks as possible from the amount of ground that is at his disposal. But, unless he has had considerable experience, it will probably be better for the first season at least for him to use the simplest and easiest method of growing. This is to put the plants six inches apart in single rows, 2½ or 3 ft. apart. Another method is to plant the early celery in rows 4 to 5 ft. apart, and at the proper time "interplant" these with the late crop. Where paper or individual blanchers are used for blanching the early crop, this can be done. Another method is to set the plants in double rows, the plants being "staggered" and placed 8 or 10 by 12 inches, with 3 or 4 ft. between the rows. This considerably increases the number of plants which may be grown, but renders the operations of cultivation, hilling, and so forth, more difficult.

The mere matter of growing the plants is after all the easiest part of the work. Attention to little details is essential

THE "new" celery culture consists in planting the plants in solid beds, 8, 10 or 12 in. apart each way, according to the variety. This, of course, very greatly increases the number of plants which may be grown, but they are not nearly as large nor as well blanched—and although great results are often claimed for this system, I would advise any one who has had little experience to try but a small part of his crop that way for the first time.

In setting out the plants, take them out of the flats or the seed beds as carefully as possible. First moisten the ground and trim back the tops so that they will not wilt and "lop over." Dig out a deep trench where each row is to go and put in a generous application of the "starting mixture," which has already been described in a former article. This, of course, should be covered and mixed with the soil before planting. If the trench is a few inches below the surface level, so much the better. But do *not* dig out a deep trench and put the celery plants at the bottom of it.

For several weeks after planting the work is mere routine—hoeing, cultivating and irrigating, to keep the plants growing rapidly. Never work them while they are wet. Where blight is to be feared, spray thoroughly with bordeaux mixture, or better, as the plants begin to attain full size, ammoniacal copper carbonate solution.

As the plants get large enough to start to spread, work enough soil up close to them, with the hoe or wheel-hoe, to keep them growing in an upright position; but never throw up so much that the crowns or hearts are filled.

AS TO the various methods of blanching, this is the critical point of the whole business of celery growing, and I would suggest the use of whatever method the grower is familiar with. At the same time try out the other methods to see if a more efficient one may be found. The early crop, of course, is blanched where it grows and sold directly, while the late crop is trenched or stored. Boards are used widely for the early and the first part of the late crop; they are quick and convenient and with care will last for years, but the first cost is considerable. Cheap cypress is the best material as it is rot-resisting and does not warp as much as most native woods. There is a special tough paper made now particularly for blanching celery. This, also, is very convenient; it is held in place by wire staples. Where the rows are far enough apart, the plants may be blanched entirely by being banked up with earth. Here again irrigation is important, as it is exceedingly difficult, to say the least, to try to "bank up" with dry soil.

Apples for a Small Orchard

E. P. POWELL

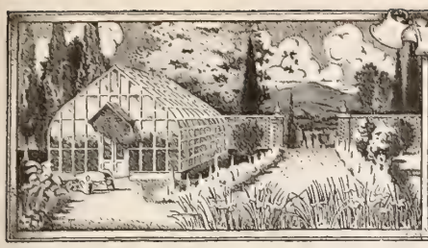
WHEN setting out your small apple orchard this spring, you want to be sure to plant trees that will give a suply of apples through the summer and fall, and not have your entire crop come at one time. The most desirable half dozen early sorts I have found to be Red Astrachan and Yellow Transparent, followed by Siawassie Beauty and Alexander, with Wealthy and Duchess. In some sections Williams Favorite and Autumn Strawberry are also excel-

[illegible] comes the Old Pound Sweet for September [illegible] October, always to be grown out in the [illegible] with plenty of sunshine; and for a [illegible] Danchy is, in my experience, best both for good growth and fruit.

For late fall or early winter, plant McIntosh Red, Walter Pease and the old Spitzenburg, always grafting the last named high up in old trees, if possible. The King apple, where it will do well, has no superior either for beauty or quality, but it is limited to only a few sections of the country.

For late winter use, plant Stayman's Winesap, Black Ben and Delicious, following with Giant Heniton, Northern Spy and either Baldwin or Rhode Island Greening.

Make sure about the actual requirements of your market and prepare stalks accordingly



ODDS AND ENDS
FROM EVERYWHERE

Why Do Tulips "Break"?

I WISH I knew. The breaking is not a matter of great importance when one grows tulips only for the flowers; but, when one is growing bulbs under name for the market, it is disastrous. The variegated blooms from some varieties are very beautiful as individual flowers, though they give very poor effect when used in bouquets.

According to Bailey, the Hollanders ascribe the broken forms to offsets, or divisions, from the bulbs, which spring from outside the main skin of the bulb, instead of being enclosed within it. Possibly they are right, though certainly not all such offsets break, as I have planted them for years without getting such results, except from but few of them. Gretchen was the only variety which gave me trouble until this year, but I had quite a number this season from Clara Butt, Kate Greenaway, Glow, Europe, Baronne de la Tonnaye, and White Queen, also two out of four big bulbs of Massenet. These two bulbs of Massenet, mother bulbs, I do not think were variegated the year before, which would tend to disprove the Dutch theory.

This "breaking" as it is called, seems sometimes to be the collecting of all the color into streaks of a deepened tint, leaving the rest of the petal area white, sometimes to be the separation of a "compound"(?) color into its elements. The color change is permanent, a new variety being formed. The breaks from any variety usually resemble one another, though I have seen two color-types from the same variety. As to the cause of the freak, I might suspect overstimulation, or possibly excessive moisture in the soil. The moisture theory is suggested to me by the fact of the trouble being excessive this year, when rainfall also was excessive: yet the cause, whatever it is, may have operated before the bulbs were planted for this season's growth and blooming.

Missouri. BENJAMIN C. AUTEN.

Propagating Chinese Primroses

MY CHINESE PRIMROSES were a joy to my family and friends last winter. Two years ago I invested twenty cents in a paper of mixed seed ordered from a reliable seedhouse, and raised about two dozen strong, healthy plants. Nearly all of them bloomed the first winter, their colors ranging from a deep cardinal, through several shades of pink, to pure white, and there was one delicate shade of lavender. The next summer, by taking off and rooting shoots, my number of plants was increased to three dozen. Several of these were used as gifts at Christmas, others went to sick friends, and some have graced the parlors of neighbors at entertainments. They continue in bloom for six or eight weeks and even without blossoms the rich green, finely cut leaves make an ornamental plant. They are easily cared for, requiring moderate heat, but must never be allowed to get dry. In summer they must be kept in a shaded place and given plenty of water. The offshoots are not difficult to root and usually begin to grow within a few days after being transferred. Instructions for planting come with each paper of seed and are easily followed.

Bon Air, Va. M. E. HAZEN.

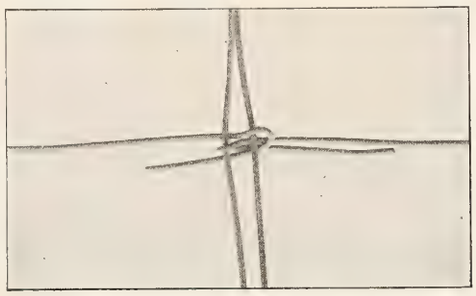
Does Platycodon Winter Kill?

AFTER reading an article in the January GARDEN MAGAZINE, on "Does Platycodon Really Winter Kill," by E. S. Johnson, I want to tell of my plan with these lovely flowers. I entirely agree with the writer, that the plants are more often killed by "hoe and trowel" than by severe weather. Therefore, late in the fall, say the last of November or the first of December, I put a large trowel full of finely sifted coal ashes right on the crown of Platycodon plants, also the hardy Delphiniums and Pyrethrums. Then, in the spring I know just where *not* to dig. I have lost all my first plants of Platycodon by too zealous digging in the early spring, as they are very slow to appear and when they do they are a green purplish-brown color, not unlike the earth. Also, the coal ashes will keep away that pest, the white grub, which is so fond of Delphiniums.

Glen Cove, L. I. F. S. COLES.

A Home-Made Support for Sweet Peas

A VERY strong and durable support for Sweet Peas is shown in the accompanying illustration, which permits of the free circulation of light and air on all sides of the plants. It is made from a piece of electric welded fencing, joined together by cutting the mesh half way and folding the ends back upon them-



selves after passing them around the upright of the opposite end.

This support can be made for very little and will last for several years. It is productive of sturdy plants and a profusion of fine blossoms.

Ottawa, Can. H. B. W.

Maggots in the Radishes

I AM an amateur gardener with about three acres to cultivate. On this I grow shrubs, perennial plants, ornamental trees, also fruit trees, berry bushes, vegetables, etc. My most disappointing crop is radishes; I can grow them all right in my hotbeds but they are a failure outdoors, even though I have tried them on different kinds of soil and with many kinds of fertilizers. The soil is the bottom of an old glacial lake—light, very cobbly, with a gravel subsoil. I have used barnyard manure, hen manure, commercial fertilizers, lime and wood ashes—and also no fertilizer—only to have my radishes riddled with maggots. I have also met with the same failure with onions, although successful in growing other vegetables. What is it that I should have done that has been neglected?

Mass. GEORGE A. FULLER.

—IF WE are not mistaken the trouble lies in the fact that the soil is suffering from a case of "over civilization." Though you plainly state that it is "not too rich," frequent and continuous applications of such highly concentrated fertilizers as you have used, would make the poorest soil a hotbed of fertility. And you *started with an old lake bed as a basis!*

You should either change your soil or move your radish bed (also the onion bed) to a part of your three-acre lot where they have never grown before. Select the poorest spot if you will, sow your seeds, apply wood ashes to the onions and fertilizers or well rotted stable manure where the radishes are to grow. But shun fresh or even partly rotted stable manure, for it is in this that the fly breeds which lays the eggs of the maggots that subsequently attack the radishes.

If there is not a spot in your small garden that is free of the larvae of this pest, try a remedy that I have frequently recommended to backyard gardeners whose soil by years of strenuously manuring and fertilizing, has become "over civilized." Select a place about 10 by 10 feet in size, and remove the top soil to a depth of six inches. Then from an empty lot or nearby field secure a few wheelbarrow loads of common, ordinary soil. Spread it evenly, sow your radishes and you will undoubtedly get good radishes. At the beginning try such kinds as Rapid Red and Scarlet Globe, and after you have determined that there are no maggots in the soil, try a few rows of Icicle, but *shift the rows*, even if only a few inches!

Finally, if it is impossible for you to put either of the above suggestions into practice, there remains the alternative of fighting the pest the best you know how. Kerosene emulsion, sprinkled sparingly between and alongside the rows, will kill the maggots. Salt at the rate of 2½ to 3 bushels to the acre will help to counteract its activity. Air-slaked lime and wood ashes in any quantity will make living unpleasant for the intruder. But, best of all, rotate your crops so that any members of the cabbage or onion family never occupy the same soil two years in succession.

ADOLPH KRUHM.

A Sunday School Garden

GOING to Sunday School during the summer months had always been the bugbear of my childhood; so last year, very early in the spring, I began to think if there were not some way to make it a pleasure to the youngsters who go "this day and time." I thought of the school gardens that are being established everywhere; why not try a Sunday School garden?

A little later I told the young folks about the idea and they were delighted. We had a man plow up a big place back of the church and on the appointed day during the week all

appeared with hoes, rakes, seeds, etc. In different parts of the church grounds the boys set out Rose bushes, Iris roots, Peonies, and other large plants; but they would have nothing to do with the little flower seeds, which were left for the girls. They marked off the plowed space into squares, planted the seeds, and each girl came to tend her own garden whenever it was most convenient to her.

After the seeds were planted the ground was watered every evening at sundown. For a number of days there was an unusually hot spell and one of the teachers went every morning and covered the planted ground with newspapers (fastened, of course, at the corners with stones), to keep the ground from baking and the newly started seeds from drying out and dying. Some fertilizer was used, and we had a really lovely garden up to frost. It was never too hot for the children to go to Sunday School that summer; the possibility of having their flowers used in decorating the church was sufficient incentive. Flowers were also sent to the sick and to the county jail.

In the fall the boys planted a hundred crocus bulbs on each side of the walk from the street to the front door of the church, and back of the building many of the spring blooming bulbs were planted. This year our Sunday School garden is to be a dream of loveliness!

Lexington, N. C. Marian Andrews.

The Squash Vine for Decoration

Do we not often, in our devotion to the spectacular or the unusual, overlook the decorative possibilites of some of our commoner plants? What could have been lovelier in its

place than the pumpkin vine here pictured, or what flower more glorious than its seven-inch trumpet of beaten gold?

Missouri. Benjamin C. Auten.

Wanted—A Classified List of Vegetables!

I am much interested in the vegetable articles published in The Garden Magazine. But what is needed is a classified list of vegetables for the home garden, with a brief description and comparison with other varieties in the same class, given each year and kept up to date. I read in one catalogue that Laxtonian peas are sold under names of Pioneer, Blue Bantam, Peter Pan, etc. If this is true, we ought to know it and not be disappointed if several of them are bought for different varieties.

Kent, Conn. C. H. Perry.

[An up-to-date list of varieties would be an excellent thing; but it is impractical for The Garden Magazine to give it because it must be too arbitrary. As you probably know, no two experts agree (and they are justified in not doing so) on what really is the "best" variety in the different classes. The requirements for different sections of the country—nearby as they may be—are just as different as they can be.

Were we to attempt to publish a classified list of vegetables for the home garden, it would occupy at least six or eight pages and would take the form of a catalogue. Again, in giving descriptions and comparisons, these comparisons would practically be the ideas of one man.

The main difficulty lies in the fact that between Maine and California and the Canadian border and New Orleans there are more than one thousand seedsmen and every one feels that he has a perfect right to name any variety anything he pleases. When you realize that there are approximately 400 varieties of lettuce listed by American seedsmen, of which nearly 350 represent synonyms, you will appreciate what a task would confront us. We try each year to give to our readers the best that we can work out or have worked out for us by experts.

As to your particular inquiry about Peas, if Laxtonian resembles Pioneer but Pioneer is better than Laxtonian, and Blue Bantam is better than Pioneer, we can safely call Blue Bantam the most desirable type of this kind of pea. You see, horticulture is not an exact science for the simple reason that nature's forces are constantly interfering in either a favorable or an unfavorable way with man's methods. In the case of these three peas, no doubt mankind took the slow way of improving by selection, when nature took the short cut and produced Blue Bantam, beating both Pioneer and Laxtonian, which were the result of cross fertilization or selection on the part of gardeners.]

Plum Borer Feeds on Injured Trees

The American plum borer, an insect which attacks impartially plum, cherry, peach, and apple trees, has been found by investigators of the U. S. Department of Agriculture to confine itself entirely to those trees which have received some previous injury. It is, it is said, entirely unable to establish itself upon vigorous, healthy, uninjured trees and for this reason, except in occasional cases, is unlikely to become a pest of more than ordinary importance. It is frequently found, however, on apple trees which have suffered from collar blight. In order to prevent infestation by the American plum borer the precaution of cutting away the dead bark and painting the wounded area on all injured trees with any non-injurious tree paint is advised. After the borer has once established itself the cutting-out method is the only one that can be followed. When the proper conditions are present the plum borer can do considerable damage, and it is therefore advisable to take precautions against it.

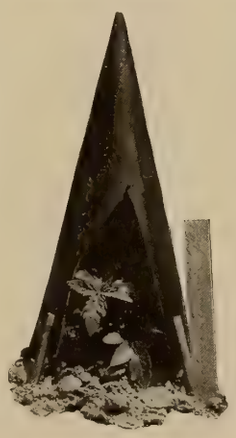
A Plant Protector

It was with considerable interest and enjoyment that I read the instructive and entertaining article by E. A. S. Peckham on "Hurry-up Devices" in the January issue of The Garden Magazine. It reminded me of a little device which I have used for some years—not to "hurry up" growth, but to protect growth already made—a plant protector.

With us, cool nights are quite common until the middle of June. To yield the bulk of their crop before September frosts, tomatoes should be set out early in June. A set-back is a serious matter in tomato culture, where the seasons are short, and to prevent this check in growth is the purpose of these little protectors.

The strongest points in their favor are their low cost, durability, ease with which they may be made at home, if not procurable in stores, and the efficiency with which they serve the purpose for which they are intended. They come in two sizes—at $1.00 and $1.50 per dozen. The material used in their making is a heavy oiled (waterproof and airtight) cardboard, folded in cornucopia fashion and securely fastened with wire staples. Three legs, eight inches long, of which three inches extend over the paper part, enable the gardener to push these protectors firmly into the soil. Since these are in use only a few weeks each spring and possibly a week or two in the fall (to protect a few choice lettuce heads up to Thanksgiving) they will last for years.

Comparatively few stores handle them, but that need not discourage you. Get some heavy paper or any kind of flexible material (cardboard, roofing, etc.), and twist into cornucopia shape. Needle and thread, paper clips, wire, most anything may be used to fasten the ends in place. The legs may be made of spliced soft wood, slipping the spliced end three inches over the hood and allowing four to five inches to be pushed into the soil.



It is also ideal for shading newly transplanted seedlings during the day, when the legs should *not* be pushed completely into the soil, so as to permit air to freely circulate.

Greene, N. Y. A. Kruhm.

An Early Start With Onions

Last year, early in the spring, when I was going over my onions that had been kept for winter use, I found many that were commencing to sprout and getting soft. These I planted early in April, and by the 15th of June had onions much farther advanced than those raised from sets planted at the same time. The old soft onion disappeared entirely and was replaced by a firm white bulb, large and well developed.

Long Island. Mary H. Cotton.

New Nut Trees for the Northern Dooryard

Suppose old man Baldwin had not told anybody about that first Baldwin apple tree? There would have been no Baldwin apples for the rest of us. Fortunately Mr. Baldwin knew an opportunity for fun, money, and public spirit when he saw it, so he grafted other trees from the original one and gave cions to his friends.

The time has now come when we need to find dozens and scores of other Mr. Baldwins who will tell us about the good wild nut trees of America. We now know how to graft them, so that the finding of them amounts to something. We have most surprising resources in the shape of rare nut trees, if we just knew where they were. As an example of these unknown resources, let us cite the recent discovery in Indiana of three or four of the finest pecan trees in the world! It required searching to find these trees from among the thousands of wild ones, but it is true that somebody—some boy, some hunter, some observant farmer—had his eye on nearly all of the extra fine nut trees in his neighborhood. He should tell the world about them. The way is easy—simply send samples of the nuts, with an account of the tree, to the secretary of the Northern Nut Growers' Association, Dr. W. C. Deming, Georgetown, Conn. This association is made up of a collection of people who love nut trees and are interested in them. It wants your help so badly that it is offering money for it—$50 for a hazel tree of American origin that can compete with the imported filberts; $10 for a Northern pecan better than we now have; and $20 for other nuts that are found by judges to be sufficiently valuable.

Calosoma Beetle Foe to Gipsy Moth

This beetle, which was introduced into New England in order to combat the gipsy moth, is declared by the Government entomologists to have firmly established itself in its new environment. The first of these green beetles was sent from Europe in 1905. Between then and 1910 a little more than 4,000 of the insects were shipped to this country. They have multiplied and spread with extraordinary rapidity and are now so abundant that many people in New England are familiar with their appearance and habits. These insects, both as beetles and as larvae, consume enormous quantities of the gipsy moth larvae. They are able to climb trees upon which their prey are feeding and are most active during the periods when the gipsy moths are abundant. It is not apparently injured by the wilt disease which is so prevalent in its prey, and neither is it apparently affected by the sprays used to control the gipsy moth.

[The link that binds the house and the garden, though fully realized and felt, is at the same time often intangible and elusive. In the subtle union and harmony of the two elements—outdoors and indoors—with the perfect transition from the one to the other in both directions, the charm of the garden as a part of the home is best expressed. Yet little attention has been given to the coördination of all the things and materials that enter into use here. It is such subjects that will be discussed under this department. The first article, by Mr. Aymar Embury, II, appropriately deals with "Doorways to the Garden," and will be followed by others discussing such subjects as "A Successfully Remodeled House and Its Garden," "Living Porches and Sun-Rooms," "Kitchen Entrances and Gardens," "Subsidiary Structures of the Garden and Grounds," etc., etc. Readers who have special problems before them in connecting the various parts and units of the house and the garden, indoors and out, are invited to confer with this department.—EDITOR.]

Doorways to the Garden

AYMAR EMBURY, II

THE architect regards the garden from a standpoint in many ways unlike that of the owner of the garden—the actual gardener—and also unlike that of the landscape architect. This point of view is less concerned with the garden as a success in floriculture than as a pattern of design; an attitude of mind justly abhorred by every good gardener; and yet one after all which may have something in it; at any rate the purpose of the articles I am to write for THE GARDEN MAGAZINE is to set forth this unnatural viewpoint in its best colors, with the hope that perhaps it may not in all respects be useless and false.

The first trouble that one is apt to find with the architect is that he cannot regard the garden—or the gardening—as of more than secondary importance. We are such a self centred lot. that the garden seems to us valuable primarily as a setting for houses, and as a means of tieing it into the landscape. Of course one of the purposes of the landscape architect is to cover up the house with trees or bushes or vines so as to make it less a blot on the landscape; and with this purpose we architects, to some extent, sympathize, although we don't want the process carried too far. Mr. Walter Cope, who was the architect of some of the lovely new buildings at Princeton, one day was being shown how fast the ivy was growing, and suggested instead of wasting time in building the buildings of carved stone and then covering them up with ivy, that they be sodded.

Nevertheless the house is a purely artificial object and cannot be planted down in any naturalistic setting, no matter how beautiful this setting may be, without an inevitable dissonance. The artificial and the natural must be tied together, their junction must be glossed over and decorated, and this from the architect's point of view is the chief importance of the garden and the general development of the gardens about the house. Of course to the average householder this way of seeing the garden is heretical; to her a garden is simply a place to grow flowers, and if these flowers are luxuriant enough and arranged in somewhat tidy beds with little paths between them and occasional "objects of interest," such as sundials, seats and gazing globes scattered about, there is garden enough.

The landscape architect looks at the matter from a third point of view, to him the garden is the feature of paramount importance, and in his mind the house is chiefly interesting as an accessory or setting for the garden, rather than a starting point for all design about it.

An excellent example of the doorway from house to garden is seen in the residence of Mr. James L. Breese at Southampton, L. I. The upper picture shows the splendid harmony of the house and garden.

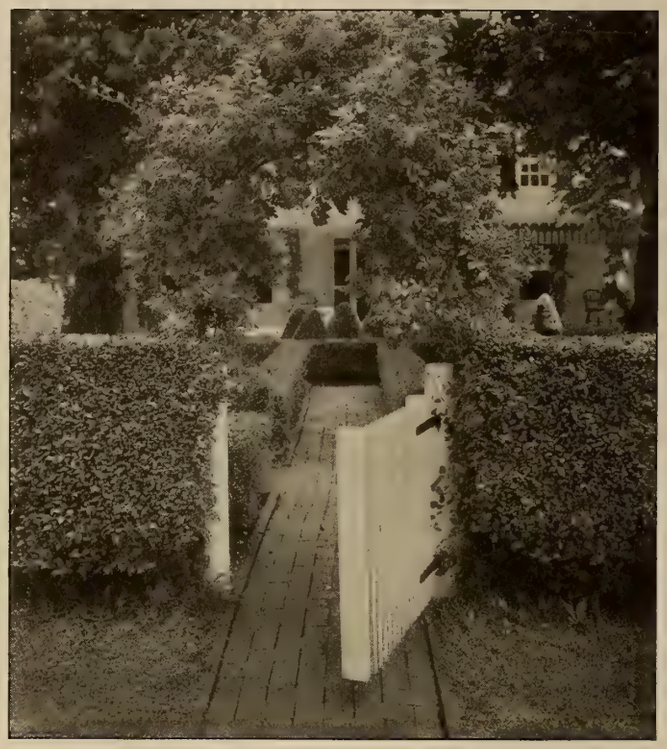
THE architect's chief concern with a garden is to see that it develops well from the house, in other words that the principal vistas in the garden correspond with vistas or axes of the house, or that the garden vistas are so arranged that they can be viewed from proper places in the living room, dining room or hall of the house itself.

The garden may be very lovely itself, and yet not hold very successfully to the house, because the vistas do not agree with those of the house, and because the doorways to the garden do not enter it as they should, and this is one of several points where the architect feels that the average garden design misses perfection. We most of us want something more than flowers and paths in a garden; we want the flowers to march beside the paths in orderly array, and we want the paths to lead us from one point to another in a logical and natural way. We want something of geometry mixed with our floriculture, and while with the gardener we want great masses of bloom at every season of the summer, we want also to approach them by an expected way, not just to happen upon them.

There are others besides the architects who feel the need of geometric forms in the garden, and we find many

a garden laid out in delightful patterns, filled with lovely flowers and yet unsatisfactory to the architect, because its doorways are ill placed, or because there are not enough of them.

There is in my home town one of the prettiest little formal gardens I have ever seen; agreeable placing of seats and benches; delightful little archways and Rose arbors, which exist in several places. It is not a very big garden, not more than 100 x 200 ft. I should think; one end of it is terraced up several steps above the other, and when one is in the garden one can hardly imagine a pleasanter place to be. But the house must be five or six hundred feet distant from the nearest part of the garden, and the garden itself is set in the middle of a hay field with no very large trees near it, and is bounded simply by a hedge. The situation of the garden is such that from the streets around it can be looked into from above, and the whole pretty scheme is completely exposed. You see it in its entirety, a lovely little garden wasted, for it has no proper doorways at all. You leave it by passing under a bowered arbor, and find yourself nowhere; it has exits but no doorways.



This Philadelphia dooryard garden is a delight both from house to garden and garden to house. The white gate and arch of Roses are pleasant features

The most important of all the garden doorways is that which leads from the house direct into the garden; for through it you step from one world to another, as completely as did Alice when she crawled through the looking glass. This doorway will form part of the house but should form part of the garden too, since it will be the termination of an important vista, and should be something more than the usual house door having in it a suggestion of out of doors.

Almost a perfect example of a doorway from the house to the garden is that of the residence of Mr. James L. Breese at Southampton, which is here illustrated. The house itself is one of the most beautiful and characteristically American of our larger modern residences. The architects have treated the building throughout in a very simple Colonial way, but have succeeded in producing a real home of large size and great dignity, but from which the element of stiffness is entirely absent. The same sentiment has been very happily carried through the garden which is enclosed at one end by the house and two of its wings, and along two of its sides by pergolas extending out from the wings of the house. This garden is entered in several very charming ways, of which not the least attractive is the doorway illustrated. This door is just the sort of thing that an architect likes to see between the house and the garden; it is a lovely piece of design, and is flanked by fine big round box bushes and framed by Clematis. The pavement of the path which leads to this door in itself is a thing worth study. It is brick laid without cement; grass is growing up in the chinks, and there is an expression of complete unity of design in the blending of the natural and the artificial.

A doorway between two parts of the garden, formed by pedestals supporting vases. Terra cotta in a variety of designs is suitable here

The other illustration of the garden shows how satisfactory the treatment is in all respects; to the architect this is a good setting; to the gardener a place with lots of flowers, and to the landscape architect a good piece of design, well contained by the house. The rather surprising absence of the customary furnishings of the garden is noticeable; benches, dials, or figures, and a dependence upon the flowers for the general interest, and upon shrubs to mark boundaries and crossings.

A VERY perfect example of harmony between house and garden is shown in the photograph of the Philadelphia dooryard garden. The garden itself is lots of fun and is perfectly bully with the house, and has two most excellent varieties of doorways to the garden; one from the house to the garden, and the other from the garden to the street. Anything pleasanter than this white gate, its posts sunk deep into the hedgerow to which it forms an interruption, would be hard to conceive and when the archway of Crimson Rambler Roses is in bloom it seems very near perfection.

A very different and very lovely garden doorway is that of the Blair house at Bar Harbor. Here is really no door, but only a doorway formed by pedestals supporting vases, and flanked by heavy foliage. It is different from some of the others, but not less pleasing, in spite of the fact that it has no immediate connection with the house, and is a doorway between two parts of the garden.

IT OFTEN happens that a formal garden or a garden of any sort, because of natural conditions of the ground will be separated by a considerable space from the house itself; at the same time the doorway to the garden should be very plainly marked, approach to it from the house should be so obvious as to constitute almost a necessity of approach by that particular direction, and as a rule the general breadth and proportion of the garden should be indicated and carried back to the house in some way by rows of trees, by paths, or by planting.

(*Continued on page* 206)

Here is a garden gateway that could not well be attached to the house, yet is well enough as a framework for vines

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Set out cabbage plants and lettuce plants.

Tomato, pepper and eggplant seedlings should have been transplanted in March from the hotbeds to the coldframes and some into small pots and sunk up to the rim in earth in the coldframes. Watch these carefully so they will grow to be stocky plants, water them in the morning, ventilate the frames during the day, and cover carefully at night. If the days are very hot, water them in the afternoon instead.

Do not attempt to plant in the open ground before all danger from late frosts is past. Rather bend one's energies to getting the soil in good shape. Work thoroughly and plow in a lot of well rotted cow manure. Vegetables need rich land and should be forced rapidly to maturity. At the last working put in the commercial fertilizer adapted to each particular crop. Remember that, because of difficulty of obtaining potash, deep plowing should be resorted to, especially for potatoes and corn. The lime put on the soil in the fall and washed in by the winter's rains and snows makes available the potash in the subsoil or clay.

The asparagus bed should have been mounded up in March as cutting begins the first of April, unless the spring is backward. A good sprinkling of coarse salt after mounding the beds is helpful and also prevents weeds. This mounding is done to obtain white asparagus; use flat culture if the green tips are desired.

Fall-planted cabbages should have a sprinkling of nitrate of soda between the rows every two weeks. Put in just before a rain if possible so it will be washed into the soil. Plant vegetables in rows two feet apart to allow horse cultivation, if the garden is to be of any size. In a very small backyard garden or cottage garden for a small family where land is a consideration, rows a foot apart is sufficient; these can be worked by hand, and the junior plows and cultivators are indispensable.

For the early crops the Irish cobbler is a good potato; also the Alaska type of peas; Sparks Earliana, Bonny Best, and Maule's Earliest and Best tomatoes; Black Beauty eggplant; Chinese Giant and Neapolitan peppers; Egyptian and Eclipse beets; Way-a-Head lettuce and Early Jersey Wakefield cabbage. The above named are old varieties and thoroughly tested. Try a few new varieties this year.

The orchard needs close attention. Watch out for the tent caterpillar. The first signs are thin, grayish-white streaks about the crotches of the limbs. Wrap the end of a stick with a rough piece of burlap and with this rub these whitish places. They are the larvae of the tent caterpillar. A weekly investigation of the trees and the wiping out of these first signs will save a world of trouble later.

See if the gum is exuding at the base of peach and plum trees; if so, take a sharp knife or stiff wire and dig for the peach borer. The gum is the beginning of the tunnel; follow it down for about a foot into the ground and a white worm, which is an inch long and known as the peach borer, will be found. After thorough investigation paint the base of the trees thoroughly with whitewash with a little carbolic acid, coal tar and lye mixed in. Do this twice a year, in early spring and late fall.

Spray with bordeaux and arsenate of lead (summer strength) within ten days after the blossoms drop, for the curculio on peach and plum and coddling moth on apples and pears. Spray again just after the fruit is formed and again when the fruit hangs down. Grapes should be sprayed for rot just before the blooms appear and ten or fourteen days thereafter, and

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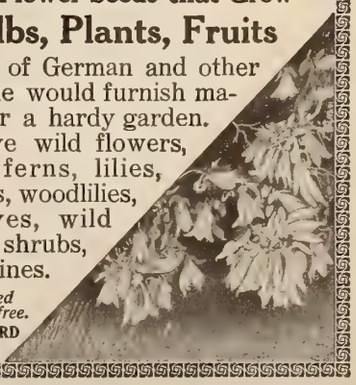

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twice again at intervals of ten days or two weeks, leaving out the arsenate of lead at the last spraying, when the grape bunches are thoroughly formed.

Work in a little commercial fertilizer between the rows of the strawberries and mulch with pine tags or fine straw close under the leaves to keep the berries clean. Trim the gooseberry bushes from the centre to let in sun and air, as these are subject to mildew. If this should appear sprinkle with flour of sulphur in the early morning when the dew is on the plant. Watch out for the currant worm. A sprinkling of hellebore in the early morning is effectual for this.

Trim up the hedges on the lawn and in the flower garden. Sow annuals. Transplant from coldframes the perennials sowed the August previous. Pansies now in bloom plant out among the bulbs. A pleasing effect is made with a pale yellow Pansy among the silvery blue of the Queen of Blues Hyacinth. The delicate pink of the English Daisy accords well with the white Hyacinth, if planted among them. These bulb beds would then have a good cover long after the Hyacinths have stopped blooming. Foxgloves and Hollyhocks grow tall; put them at the back of the border and aim to get graded heights, putting the lower plants, like Sweet William, near the front and the dwarf plants like Alyssum and Nasturtium, etc., on the edge. Do not put in same border colors that clash. Refer to your last year's calendar, if you kept one as advised in The Garden Magazine, and you will know which flowers bloom at the same time; and so if they are varied in color and unfriendly, put them in separate borders far removed. A good combination last year, I remember, was pale canary-yellow Snapdragon with pale blue Scabiosa and deep blue Stock, and the blooming period extended over several months and late into the fall. These bravely resist heat and drought, whereas the hardy Zinnias wilted in short order. Petunias give a wealth of color from the deepest shades of maroon to the clearest white, and Verbenas also have a wide range of colors and are persistent bloomers. Both stand drought and much bad treatment.

Virginia. J. M. Patterson.

Edible Podded Peas

Not many people are familiar with the good qualities of edible podded peas, or sugar peas, as they are also called. They are seldom seen in the market, due, perhaps, because they do not stand well the long and rough commercial journey between the garden and the table. If you never have tried them, make a planting this spring. They are as good as shelled peas, similar to them and yet distinctly different, and yield a much greater return for the space they occupy—first, because you can get two or three pickings a week for about three weeks from a planting, and, second, because pods and all are eaten. They are not allowed to fill, but are picked when the shape of the peas begins to show plainly through the flattish pods. Then they are broken up like string beans—they are almost stringless—and cooked in about the same way as peas and about the same length of time. Thirty-five minutes is generally enough when they are fresh from the garden.

They can be planted as soon as the round-seeded earlies—which is as soon as the ground can be worked—and are cultivated in the same way as other peas. As they require support, double rows six or eight inches apart save space. With me the early spring planting yields peas for the table generally between June 12 and 15.

The Vilmorin-Andrieux garden book describes twenty-one varieties, but I have seen only four offered by American seedsmen. The dwarfs, Dwarf Gray Sugar and Dwarf White Sugar, grow three feet high. The former, with violet colored blossoms, is perhaps a little finer quality, but the difference is slight, and the latter, with white blossoms, is much more prolific, according to my experience. Of the two tall-growing kinds, Luscious Sugar grows four feet and Mammoth Sugar five feet tall.

A second planting of the dwarfs, made in mid-July, will, with good luck, yield a crop smaller than that from the spring planting.

Indiana. W. L. Wilson.

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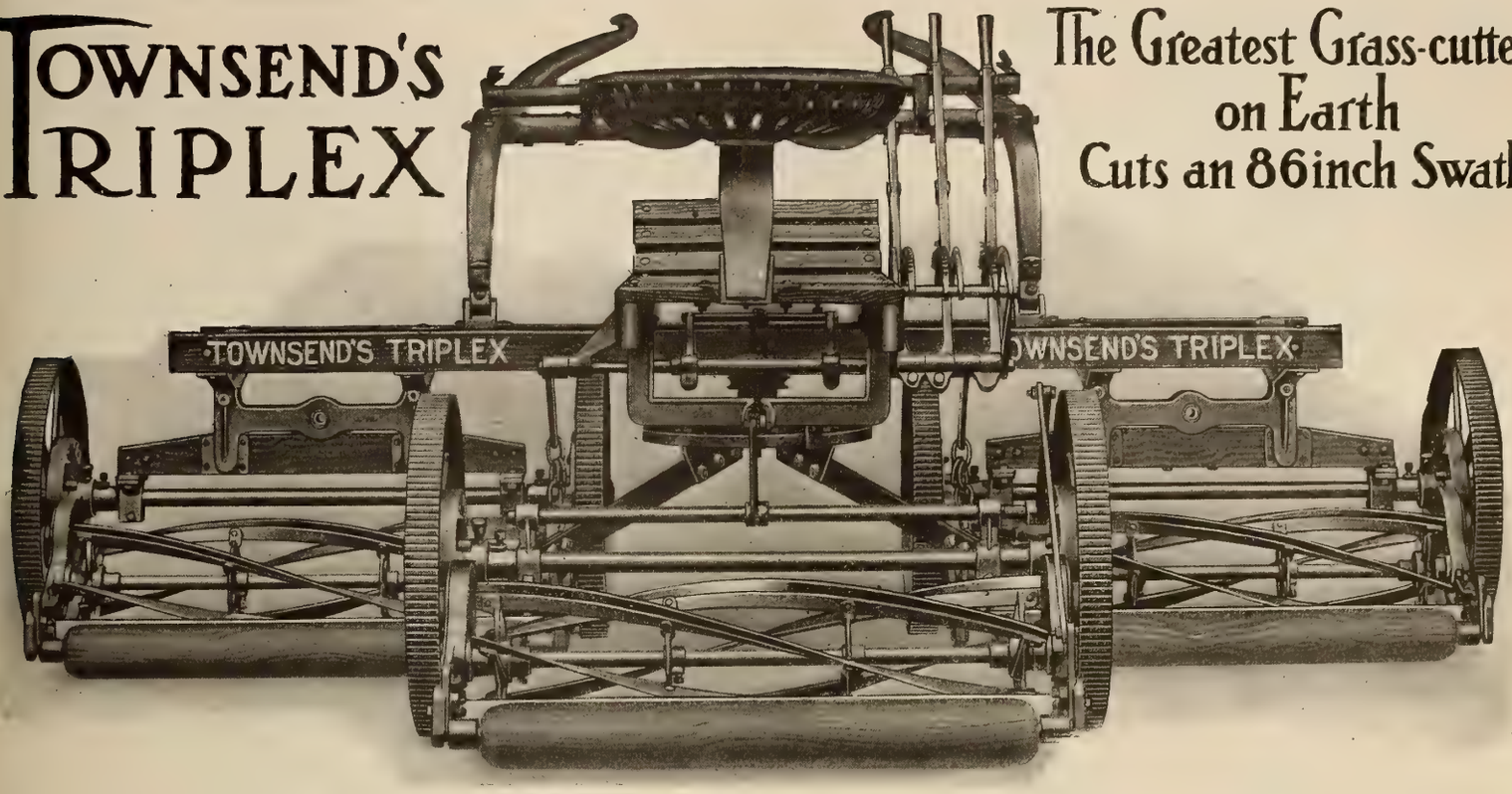

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Roses in Oregon

I HAVE a most delightful Rose garden in which I have tried out many varieties. The soil is heavy and rich, and never lacks an abundance of moisture. The plants are seldom troubled by mildew; and as the temperature rarely goes below 18 degrees in winter in this locality, the plants do not winter kill. Three of my most dependable varieties are Kaiserin Augusta Victoria, Mad. Caroline Testout, and Helen Gould. They are healthy and vigorous growers, with lovely foliage. The Testout flower is cup-shaped, a bright clear pink with a salmon tint, very full, with immense petals. Helen Gould, apparently a deep rose red, is really a deep pink. It is very full, the buds high pointed with recurving petals. The stems are weak and give a pretty droop to the heavy blooms, which last on the bush for several days. Kaiserin Augusta Victoria is a cream white with a deep cream centre. It also has high pointed blooms, with rolled back petals of perfect texture. The bush is low, very well branched and holds its blooms exquisitely.

A very pretty effect I have had by growing the following Roses on a wall in the garden. Madam Berard I have found very reliable, being always in bloom and very large. It holds its beautiful foliage all through the year; the flower is full, a gold and peach color running into deep flesh tones, not so deep as Gloire de Dijon, however. Perle des Jardins has immense blooms and deep pointed, broad buds; a golden yellow of a deeper tone than Marechal Niel, and does not fade or turn pinkish in the sun. Niphetos is pure white, with immense blooms, a very strong grower and bears quantities of buds, most of which have to be discarded. Its habit of growth and foliage are very good. William A. Richardson with us is sometimes orange yellow, more often an unattractive white. It produces quantities of wide, shallow blooms.

Two Roses recently introduced into my garden attract every one's attention. One is Mad. Leon Paine, a delicate flesh and salmon in color, deepening to orange. Its flowers are nicely perfumed, broad, deep pointed. It grows about three feet high, blooms continuously and does well in a dry season. The other is Geo. C. Waud, red, a cerise poppy red, producing a profusion of blooms on long, stiff stems. The flowers open slowly and are very full and lasting. Do not put it near La France or Helen Gould, however, as it is such a vivid shade that only the yellow pinks can endure the contrast.

Grant's Pass, Ore. MRS. JOHN RAWLEY.

When Roses Do Not Bloom!

EVERY one who loves flowers wants to grow Roses; but when the plants do not bloom, notwithstanding excellent care and attention, it is certainly discouraging.

I have seen many thrifty looking Rose bushes without a bloom on them. Last summer my neighbor had such a plant; when asked if I knew why it did not bloom, I told him the plant was too near a well, the soil was too cold and wet, and the bush did not receive sufficient sunshine. These are conditions which will invariably prevent roses from blooming.

Roses require plenty of sunlight. In Northern climates the bed should be placed where the plants will get sunshine most of the day. If this is not practicable, then the bed should be located where it will receive the morning sun. A south or southeasterly exposure is good.

The best soil is one with plenty of humus, which has the power of holding moisture in dry weather. For this purpose clay loams are to be preferred to sandy loams. Heavier soils also retain plant food better than light soils. Roses require considerable fertilizer; consequently, light soils should not be selected, since they are apt to dry out during hot summer days.

The most important reason why Roses don't bloom is the presence of too much soil moisture. Where water lies within three feet of the surface the soil should be tile drained. Such a soil is too cold and Roses, if they bloom at all, will not bloom well in it. If soils of this character contain plenty of plant food, the plants may make strong growth but will be likely not to bloom. This condition often puzzles the grower, as it did my neighbor. The soil should be cool, well drained, deep and rich. Even soils of good texture should be well supplied with compost, well-rotted barnyard manure, or chicken droppings. Before the Roses are planted, work the manure thoroughly into the soil.

To make a good bed for Roses where the soil is not naturally deep and well drained, the top soil should first be removed and then the subsoil to the depth of about two feet. If the subsoil needs draining, lay two or three inch tile on the bottom with sufficient slope to carry off the surplus water easily to an outlet. If the draining is not practicable, a layer of gravel or small stones will serve the purpose, though not as satisfactorily as tile. On top of the tile or gravel place some good soil or clay loam, then a heavy dressing of compost or rotted manure. The fertilizer should be spaded in. Replace the surface soil to which has been added a dressing of manure. This should also be well worked into the top soil. Let the soil settle for several weeks before planting the bushes. For soils with good drainage this treatment is not necessary.

Roses may be grown in almost any good loamy soil which receives sufficient sunshine and is neither too wet nor too dry.

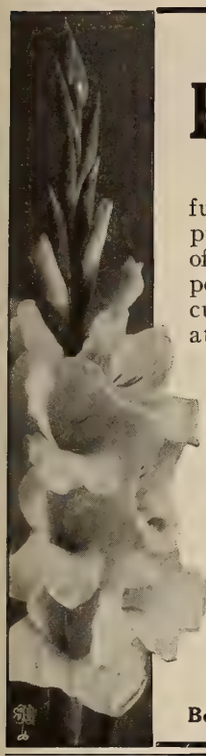
Kensington, Md. JAMES B. MORMAN.

Roses in the Far South

ROSES grow quite well in Florida, though not as luxuriantly as on the Pacific Coast. This is caused to some extent by the lack of a clay subsoil in many places in Florida, and Roses do best, it seems, in that kind of soil. Still, clay is often used to make a layer or bedding under the Rose-bed. The clay should be several inches thick, and the outside edges somewhat elevated, so as to retain the moisture. Then several inches of surface soil, well fertilized, should be replaced. For fertilizing Roses, nothing is better than cow manure, worked well into the soil and also applied in the form of liquid manure.

In this climate cow manure does not rot easily; it usually dries hard, though by covering it with soil it will decay in time. If it is possible to grind it up, it is much more quickly incorporated into the soil.

Roses mature very rapidly here, and bloom more or less all the year in south Florida—that is, Tampa and farther south. Perhaps on account of the quick development of the blooms, the flowers do not seem to have the substance and lasting qualities of Roses grown in cooler climates; not the fragrance, except the American Beauty. H. R. M.



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30 Mrs. Frances King, beautiful, large flowers. Vivid pink.
10 Niagara, primrose-yellow flowers with light pencilings of carmine.
10 Glory of Holland, pure white with lavender anthers. Blooms midseason.
10 Baron Hulot, good sized flowers. Rich, bluish-violet.

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Growing French Endive in the Backyard

FRENCH endive, or Witloof chicory, resembles celery in taste and somewhat in looks, being blanched white, but it has a peculiar, pronounced flavor of its own, nutty rich, with a tinge of not unpleasant bitterness which is delicious and appreciated. This endive can be eaten with salt the same as celery, but the best way of preparing it is with a sprinkling of highly seasoned French salad dressing, as used on lettuce.

Up to a few years ago it was imported exclusively from France and Belgium. Even today 90 per cent. of the Big Brussells Chicory, under which name it is marketed in Europe, used in consumption in this country is imported, and sold to consumers through fancy grocers and fruiterers, during the fall and winter season. The imported article comes in small willow baskets, packed in excelsior, and retails for twenty-five to thirty cents a pound.

I was one, if not the first, in America, to grow it here in quantities for high-class hotels. In former years seed was not procurable here and had to be imported direct, but of late several of the leading Eastern seed houses carry imported seed in stock and list it in their catalogues as Witloof chicory.

In growing French endive have a rich and deep soil, moist, but well drained. Early in April broadcast well rotted manure liberally over the bed and spade it in. It is essential that the soil is turned under at least twelve inches deep, with the manure at lowest depth, as the roots of the endive plant penetrate deeply and plant food at that depth has to be provided for, as it cannot be supplied with a top dressing later on. The surface is now evened up, and raked several times with the hand rake to get the top soil as finely pulverized as possible. The furrows are laid out about an inch deep with a hoe handle or any other convenient implement on hand. The distance from row to row is 15 inches; length, of course, depends on the size of the seed bed desired. Sow the seed *very thinly* in the furrow and cover up lightly with good top soil. Here care should be exercised, as deep covering will retard and sometimes prevent sprouting of the seed. A good way to cover up the furrows is to take a handful of fine soil and sprinkle it over the seed in the furrows, then firm it, by pressing a small board, the size of a shingle, over it. The seed bed should always be kept moist, the water being supplied evenly. In a few weeks the sprouts will commence to show and when the plants have attained a height of about two inches, they have to be weeded and at the same time thinned out to about two inches apart. As is the case with all thinning out work, preference is given to the most promising plants, which are retained and the poor ones removed. After this is done a top dressing of two parts of nitrate of soda and one part of muriate of potash is thoroughly mixed and broadcasted between the rows at the rate of about eight pounds to every hundred feet of row. A planet hand cultivator can be used to work in the fertilizer and stir up the soil between the rows. No further attention is required until the plants are about four to five inches high, then deep hoeing will be necessary. The soil around the plants should be loosened up thoroughly, the spaces between the plants weeded and the hand cultivator used between the rows. Clean cultivation at this early stage is necessary, as a good root formation must be developed. Very large roots have to be grown first, before any attempt to force endive can be made. From now on until the middle of July the plants are cultivated and hoed frequently, kept free of weeds, the soil loose, pulverized and moist so as to insure a rapid, unchecked growth. At the end of July the plants are thinned out again to their permanent distance of three to three and one half inches apart. Only the most promising ones should be retained and given room for mature development. The cultural requirements during summer and early fall consist in persistent cultivation, frequent hoeing and weeding and supplying sufficient water in dry weather. By October, when the plants have attained their maturity, they should be about two feet high with large leaves of intensive green color. The growing of plants is for the sole purpose to get roots of sufficient size. The leaves are valueless.

French endive is produced by forcing a second growth of blanched sprouts out of large, mature roots. End of October or beginning of November is the usual time for the first forcing. Trenches are used for this purpose; they are dug out with a hand spade, sixteen inches deep and the width of the spade. If possible have them near the house in a sheltered location. If more than one trench is to be used, dig them closely together, only a few inches apart. After the trenches are finished, a layer of well rotted manure mixed with good top soil is placed in the bottom of the trenches, so as to encourage a more rapid second growth. They are now ready for the roots from the seed beds. The plants in the seed beds have to be dug carefully, avoiding any injury to the roots. Use an ordinary potato fork; by loosening the ground deep enough, they can be handled by the leaves and pulled up from the loose soil. Each root should be taken up separately and discarded if too small, double headed or in any way imperfect. Only roots with a diameter of one and one quarter to two inches at the neck can be used if perfect endive, comparable with the imported article, is to be obtained. Before placing the roots in the trenches, clip the leaves with a clip-

(*Continued on p.* 186)

French endive, resembling celery, has a peculiar flavor of its own. It is a delicious salad plant

The HOME of HEATHER

Viburnum Carlesi

By its first name you will associate this new shrub with the snowball. But it is very different. Directly above the ground the plant branches in all directions, forming a semi-globe about three feet in height. The foliage is deep green on the surface, with a reddish underleaf, Each stem terminates in a cluster of individual tubed flowers of waxy texture like the gardenia. The buds are formed in the fall, opening in a delightful flush pink in June, changing to a pure white. As a cut flower it will last ten days, delightfully perfuming an entire room. It is absolutely hardy in the most severe climates.

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A MASTERPIECE of GARDEN CATALOGUES
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The Cornell Overhead and Underground Systems equipped with patent Rain Cloud Nozzles provide thorough, scientific, economical and effective irrigation where and when it is wanted and do away with the inefficient and troublesome garden hose.

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Note the illustration of the Underground System in operation on a country house lawn, giving the effect of fountains rising naturally out of the grass. The piping and nozzles are buried, but so arranged that they will not clog, although any type of mower, large or small, may be used without interference with the system or the proper mowing of the lawn.

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Rain Cloud Nozzles supply a gentle rain at the turn of a valve, giving exactly as much water as your garden needs, and no more, at the time and spot desired.

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OUR SERVICES include a survey of your property, together with plans and estimates covering the complete installation of our systems—also water supply and pumping plants. Write today for descriptive matter.

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Overhead System for Gardens

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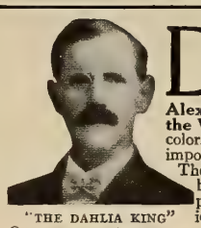

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The Dahlia of to-day is of unsurpassed beauty as a single flower, exquisite for private gardens, charming in masses, and ideal for planting against shrubbery. Our many customers are satisfied; they receive good stock; true to name, and best of all—Guaranteed to Grow.

All Flower Lovers are invited to send to the "Dahlia King" for his latest **Free Illustrated Catalogue,** which contains helpful descriptions and valuable cultural hints on **Dahlias, Gladiolus, Roses, Cannas, Peonies, Phlox, Iris, Hardy Plants** for the Old-fashioned Garden, and a general line of **Ornamental and Flowering Shrubs.**

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Photography, Good Sport

¶ but the results are not always satisfactory. Ask practical help from the photo-man with

THE READERS' SERVICE

—Our Spring List—
OF
Dahlias, Gladioli, Lilies, Phlox, Iris

and other summer-flowering bulbs and hardy perennials is now ready. Send for it, and we will also send later our Fall Catalogue of the

Best Dutch Bulbs

procurable in this country

Franken Brothers
Deerfield, Illinois

per or shears one and one half to two inches from the neck, leaving a stubby end of leaf stalks on top of each root. Use a sharp instrument and make a clean cut, not tearing any parts of the remaining leaf ends, as it is from here where the second sprouts will emerge. After the leaves are removed, each root is shortened to exactly eight inches, by trimming off as much of the spindly lower end as required so as to bring the entire length to the size desired. Side shoots or growths of any kind are promptly clipped off; then the roots are placed upright in the trenches, the clipped lower end touching the bottom of the trench. They are planted one and one half inches apart and the space between them is filled out with good top soil well incorporated with fine rotted manure. This soil must be prepared beforehand and placed within the reach of the planter. With the left hand a root is put and held in position and with the right a handful of prepared soil is gathered, to fill out the intermediate space evenly as the planting proceeds. Three to four roots will occupy the width of the trenches. After all are planted the top space of the trench, above the root heads, which is eight inches now, is filled in with rich, loose top soil to the level ground.

In order to force a second sprouting or growth of new leaves out of the buried roots, heat in some form has to be employed. Fresh horse manure on the bottom of the trenches will induce a sprouting and growing of blanched leaves, but of the wrong kind! The endive will grow open, like a half mature rose and is useless for the purpose wanted. The correct forcing is as follows:

Steaming hot horse manure, fresh from the stables, not less than two feet high and in very cold weather as much as three feet, is piled up directly above the trenches. This slow but steady heat draws the sprouts toward the surface and induces a close, compact growth of blanched leaves, forming a white oval head, somewhat resembling the heart of well blanched lettuce. After the heating material is placed no further attention is required until the forcing is finished, which is in from four to five weeks. The trenches should be marked with stakes at both ends, before the manure is piled over them, so that they can be easily located, if the manure is removed in cold weather, or if snow is on the ground, without any unnecessary exposure, and dug up quickly with a trowel. When cutting the heads from the roots about one quarter inch of the neck of the root is cut off and left on the head. This will keep the compact formation intact. Endive, when forced and ready to be taken up, will rot if left too long, after maturing, in the ground. It is a good plan to force only a part of the supply at once and cover the balance with sufficient hay or straw to guard against freezing until ready to force. In this way an abundant supply of endive can be had all winter.

New Jersey. S. L. de Fabry.

Grow Chicory (Endive) Salad in Your Cellar

My faith in seed catalogues has been reestablished; I have found a plant that really does what is claimed for it!

When sending in my order for seeds I always try some new vegetables, led on by the glowing accounts in the particular catalogue I fancy. The Mammoth and All Season wonders never have materialized, but I succumb to new temptations each year just the same.

The salad listed as Witloof chicory and French endive had caught my eye several times, but it was not until last year that I ordered a package of seed. Of course we have all eaten the Endive salad at restaurants and at our rich friends' dinners; and some of us have bought it for our tables at about fifty cents a pound. It is the best salad grown; a luscious, slim white head of tightly folded leaves, with a slightly bitter tang. I, for one, had always believed the stories about its being imported at great expense; now I know it must be grown right here in America, for if I can raise it in my own back yard I am sure the market gardeners can—and have been doing it for years.

The directions on the package said to sow the seeds in the open ground, lift roots in the

Evergreens and Shrubs for all Suburban Homes

In our nurseries you can find *Evergreens* for every purpose—single trees, groups, hedges, or windbreaks. Here, too, are all standard varieties of *Shade Trees, Flowering Shrubs, Roses and Perennial Plants.* It is not our policy to grow large quantities of stock, but rather to give extra care to the trees, shrubs and plants that we do produce, and to ship only such specimens as we ourselves would plant on our own ground.

Our New Catalogue

is ready for mailing. The catalogue contains valuable hints on planning and planting, suggests trees and shrubs for different places and soils, lists all varieties that appeal to the discriminating planter. A copy will be sent promptly on request to readers of the *Garden Magazine.*

Baur Floral Co
15 East Ninth St., Dept A, Erie, Pa.

HONEY DEW THE NEW MELON

Medium late bearing, unequalled flavor, most wonderful keeper, vigorous grower and fruiter, meatiest melon ever originated. Order one packet and start your seed patch this year. Almost round (8 to 10 in.) in form, though longer than it is deep, smooth greenish yellow rind, tough and firm, though very thin. Meat is deep emerald green and very sweet. The **Honey Dew** is the meatiest, juiciest, sweetest of its kind and honestly honey flavored. No other name good enough or exact enough to describe it. Price per dozen seeds, 50 cts.

GALLOWAY BROS. & CO., Sole Distributors
Westfield Ave., Waterloo, Iowa

Would *You* Have Accepted Daniel?

¶ "I thought that while I'm down here on the spot I might as well conclude the matter. I can spare so little time away from my business. And to court you by correspondence—well, I am certainly too much of a gentleman to send typewritten letters, dictated to my stenographer, to a lady, especially one so refined as you are and one whom I want to make my wife. And to write out letters myself, that's something I have neither time nor inclination for."

¶ Margaret was goaded by two driving circumstances to accept Daniel, though in her conscience she knew she was taking an easy way out —which was anything but easy in the end.

Her Husband's Purse
Another Story of the Pennsylvania Dutch
By Helen R. Martin
Author of "Barnabetta," (Dramatized as "Erstwhile Susan,") "Martha of the Mennonite Country," etc.
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Garden City, New York

The Newest French Canna

(L'Oiseau de Feu)

CANNA FIREBIRD

¶ This is undoubtedly the **finest Scarlet Green-leaved Canna in existence.**

¶ The petals of its enormous flowers often exceed 2½ inches in diameter, forming huge spikes of intense, dazzling scarlet.

¶ This year's awards to be added to its previous records are

Two Large Gold Medals

At the Panama-Pacific Exposition and a Large Silver Medal at Philadelphia

¶ Makes a wonderful Scarlet bed and an exceedingly fine combination as a border to our **Bronze-leaved King Humbert.**

Price, prepaid, Doz. $3.50; 3 for $1.00; Each 35c.

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Prices for the Two Kinds			
	One of Each	50c	ALL PREPAID
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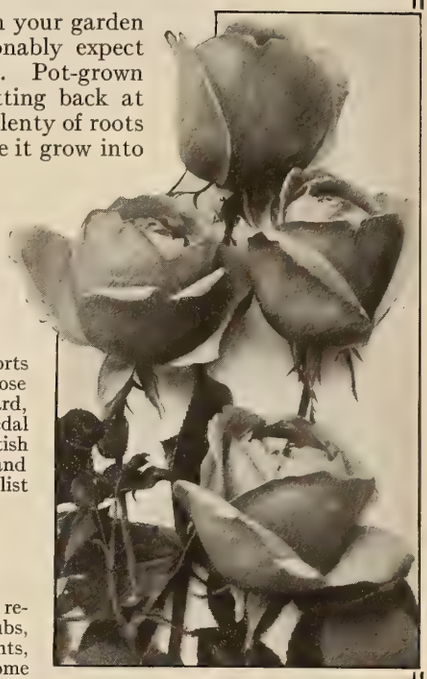
Cromwell Gardens Pot-Grown Roses

If these plants are set in your garden this spring you may reasonably expect to have blooms in June. Pot-grown Roses do not require cutting back at transplanting time, have plenty of roots to feed the plant and make it grow into a strong vigorous bush.



All the New Roses ready after May 1

These are two-year-old plants, grown in large pots, full of roots, just the kind of plants that make the Rose-fancier happy. The list includes such sorts as Red Radiance the premier Rose for garden planting, Admiral Ward, Crimson Champion (Silver Medal Rose), Primerose, Hadley, British Queen, Mrs. Wallace Rowe, and many others. The complete list is given on pages 26 to 41 of

Cromwell Gardens Handbook

which includes the best of all recently introduced Roses, Shrubs, Hardy Plants, and Bedding Plants, as well as those that have become favorites through years of garden associations. We will be pleased to send you a copy on receipt of your name and address.

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10 cactus, named; 10 decorative, named; 10 show, named. Any one of these collections, our selection of varieties, delivered postpaid for $1.

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Contains full directions on growing—any amateur can raise these fine flowers.

Also includes the finest **Cannas, Gladioli, Lilium,** and other summer flowering bulbs. Send today for your copy—it is FREE.

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100 acres devoted to dahlia culture—the largest plant in the world

Meehan's Mallow Marvel

is an absolutely hardy perennial of surpassing beauty—the sensation of the plant world—the most beautiful flower creation of the last quarter-century.

Its gorgeous, satin-petaled white, pink or crimson blossoms, fairly cover the tall, symmetrical bushes, from July to September.

Every yard or garden should have at least one Mallow Marvel of each color—more if there is room. Planted singly, or in masses it is decidedly the most conspicuous and decorative feature of the place.

Prices for Mallow Marvels—Order Early

As we originated the Mallow Marvel, dependable plants, true to type, can be obtained only from us.

Crimson Marvel:	2-year roots, 75 cents; 3-year roots, $1.00
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Our Handbook of Trees and Hardy Plants

is unique and unusual. You will appreciate a copy and we will be glad to mail you one on application.

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For True Gardeners

You who bestow loving care upon your garden, who know the satisfaction that comes from keeping the soil thoroughly pulverized and aërated—from keeping out the weeds—you can get more healthful pleasure out of your work by using the

PULL-EASY
Adjustable
Garden Cultivator

Takes but a moment to adjust it to fully cultivate rows of any width from 7 to 18 inches. Middle tooth can be quickly removed for cultivating two rows at once. Ask your dealer to show you how light and well balanced it is and how easily it can be adjusted. If he hasn't one in stock, write his name and your own name on the margin of this ad, tear out and mail to us with $1.25 and we will send you a Pull-Easy by Parcel Post prepaid.

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Best varieties for home garden or orchard, direct from grower. All our stock is state inspected, strong rooted, 100% healthy, and backed by 36 years of square dealing. We sell in large or small lots, at wholesale prices. Write for catalog and book, "How I Made the Old Farm Pay."

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CLEAR PINK. ABSOLUTELY HARDY

Send for prices and full description, and Catalogs of the only large collection of Hardy Native Plants.

Highlands Nursery **HARLAN P. KELSEY, Owner**
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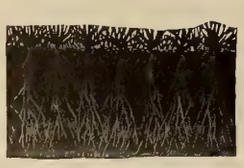
Look for the Girl with the Lawn Book

This girl has a beautiful 32 page book on lawns to give you. You will find her in your dealer's window, and her book is worth having.

BEFORE ROLLING
Freezing and thawing opens up cracks in which roots dry out and die.

Here is one hint from the book's pages.

There are hundreds of other valuable suggestions in this book for taking care of lawns.



AFTER ROLLING
Rolling settles the soil back around the roots and fits soil to hold the moisture.

DUNHAM WATER WEIGHT ROLLER

Ask the dealer to show you this roller. It can be filled with water to regulate the weight for soft lawns, firm turf or drive and tennis court. When emptied the roller is light for storing away.
The Roller Bearings make lawn rolling easy with this Dunham Roller.

THE DUNHAM COMPANY
111-141 First Avenue
BEREA, OHIO (*Suburb of Cleveland*)

If your dealer hasn't the Lawn Book write, giving us his name and we will send book FREE.

fall and force them either in the cellar or in trenches out of doors. Forcing out of doors required a great deal of manure, so the cellar way seemed more economical to me for here the heat could be supplied by our furnace without extra cost.

I had the seeds sown in a drill in the vegetable garden about the time the early corn was planted. Every seed germinated and the little plants grew so lustily that we had to transplant nearly a hundred to allow the necessary six inches between plants. The transplanted roots and the ones in the original row all flourished alike; they developed long, straggly green leaves, with jagged edges, carried more upright than any of the endive or chicory family that I had previously known. It was not a neat or pretty plant. We ran the culti-

This is the result of improper forcing, with heat applied below

vator along the rows, and gave the endive about the same attention that the beets and carrots received. After the first black frost had killed the tops I had the plants dug, and I was surprised to see what large parsnip-like roots they had grown. We piled them in a sheltered corner and covered them with litter. A dozen were chosen for the first forcing. These roots we took to the cellar and stood upright in an old window box, filling in between them with good rich earth; we then soaked the ground with water and set the box in a dark corner near the furnace. I gave orders to have the soil kept moist and thought no more about my experiment. Four days later the gardener asked me to go down cellar and look; every root had sent up a nice white shoot, already four inches high! The seventh day we cut our first stalks and I was enchanted to find that the shoots had a most delicious flavor.

This first lot had rather too open heads, not enough heart, although the leaves were all beautifully white; so the next roots we forced were planted in a deeper box, covering the roots with six or seven inches of earth. The shoots came through almost as quickly as the shallower planting, and the leaves were folded much more tightly; to make sure the heads would be firm I tied them up with raffia. Every week we started a new boxful and had salad to eat and give away all winter.

New York City. Frances K. Porter.

Growing Big Onions for Profit

At this season the young plants that are now starting to develop—whether from transplants or from seed sown directly in the garden—will need real attention with the cultivator. The general conditions as to profitable onion raising were given in detail in the February, 1916, number.

In regard to cultivation, three things need be said: (1) Keep the crops perfectly clean at all

(*Continued on page* 190)

Suppose *You* Had Married Daniel?

¶ "I had to read a 'Life of Emerson' in my Sophomore year at Harvard," continued Daniel. "Do you know that his writings never yielded him more than nine hundred dollars a year! Well educated as he was, he never made good. A dead failure. Missed the main chance, you see. Now *I* have always turned every circumstance and opportunity, no matter how trifling, to my own advantage."

¶ Margaret, however, finds the philosophy of life of the amazing Pennsylvania Dutch family into which she steps more uphill work than she had ever found that of "the sage of Concord, Massachusetts," as Danny called him.

Her Husband's Purse

Another Story of the Pennsylvania Dutch

By Helen R. Martin

Author of "Barnabetta," (Dramatized as "Erstwhile Susan,") "Martha of the Mennonite Country," etc.

Four Illustrations **Net $1.35**

Doubleday, Page & Co., Garden City, N. Y.

What Do You Do With Your Spare Time?

IN every college throughout this broad country there are students who are paying their tuition with money earned in spare moments. In every walk of life there are people adding to their incomes by engaging in some pleasant and profitable occupation during their spare hours.

You Have Spare Time — What Do You Do With It?

Most people turn to magazine work because it is interesting and profitable; the field is large and ten dollars or more a week can be added to your income, provided you interest yourself in distinctive publications. The World's Work, Country Life in America and Garden Magazine are popular, easy to sell, and subscriptions to them when expiring are usually renewed.
Write to the following address for our rates of commissions and rebates. We have a liberal offer to give you.

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Put Life Into Your House Plants

Your half dead, limp or wilty winter plants will brighten up, grow and blossom same as in summer if you use our scientific odorless plant grower and fertilizer. Its action is *quick* and helpful, enriches the earth and feeds the plants. Two sizes, 25c and 50c sent postpaid. Enough to last the average household a year. Write today.

UNITED FERTILIZER COMPANY, 383-K Ellicott St., Buffalo, N.Y.

Snapdragon No garden is complete without this grand plant, which blooms the entire season. Snapdragon has been our specialty for years and we bring to you the world's best varieties, chiefly of our own introduction. Seed of our famous Silver Pink at $1.00 per pkt.; 3 for $2.50; 7 for $5.00. Seed of Garnet, White, Yellow, Nelrose pink, and fancy mixed, 35c per pkt.; 3 for $1.00. Plants of any of the above varieties at $1.25 per doz.; post paid; $5.00 per 100, by express. Plants of Silver Queen, a new orchid flowered type, $1.00 each; $5.00 per dozen. All orders cash.

G. S. RAMSBURG SOMERSWORTH. N. H.

PENNSYLVANIA *Quality* LAWN MOWERS

Golf clubs, public parks, cemeteries and estates, in this Country and abroad, have for the last 35 years been large users of "PENNSYLVANIA" *Quality* Lawn Mowers.

A "PENNSYLVANIA" Mower cuts like sharp shears, without chopping or tearing the grass. *Every* blade is of oil-hardened, water-tempered, crucible tool steel, that holds the sharp cutting edges required to make a smooth, velvety lawn.

The positive self-sharpening construction of "PENNSYLVANIA" *Quality* blades, keeps them cutting clean and true, without the yearly sharpening demanded by ordinary mowers.

A light-running, easy-drawing "PENNSYLVANIA" *Quality* Mower does more work with less labor, and outwears a half dozen cheap mowers.

These advantages can be identified by the *Quality* mark in the handle of the following "PENNSYLVANIA" *Quality* Brands:
"Pennsylvania" "Shock Absorber"
"Great American" "Golf"
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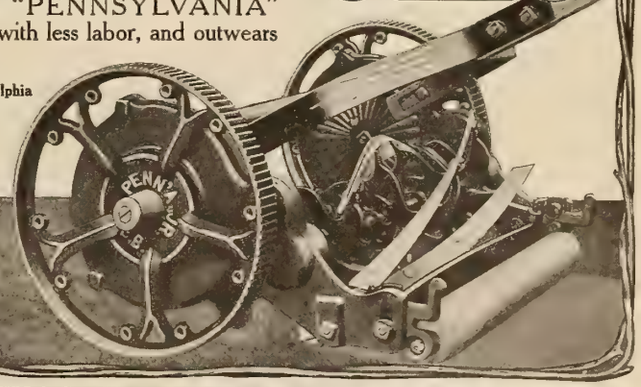

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times. This is absolutely essential. (2) Keep the surface level; *no hilling is required*, but pulverize the surface to conserve all the moisture possible. (3) Special onion hoes, with extra wide side-guards, are made, and *these are a great convenience*. I would not attempt to get along without them.

Make the work in your onion patch a sort of a continuous performance; do a few rows every day, or every week, as the size of the piece may require, and as soon as you get to the end, start all over again. This will be found much easier and safer than letting the whole thing go until it all demands attention at once.

Directly after the first hand weeding, which should be given as soon as the little onion arches are well straightened up, give an application of nitrate of soda, twelve to twenty-five pounds to each eighth acre (or about 5,000 square feet). Though this may seem like a very light dressing, it is sufficient. This dressing should be repeated two or three times during the season, *the last before the tops have attained their full-size growth*. The soda may be applied broadcast, preferably just before or just after a rain, or with a fertilizer drill.

After the tops are fully grown it will be impossible to get through them with the wheel hoe; a hand scuffle hoe must then be used. It is of the utmost importance to keep down all late weeds, not because of the injury they may do this piece but because of the danger of their leaving seed for next year's crop of trouble, for onions are one of the few crops which may be grown over and over again successfully on the same ground, *provided it is kept clean!*

After the tops break down, which in a normal season will be some time in August or early September, they should be pulled, harvested and stored. The details of this work will be mentioned in a later issue. The question of marketing, which from the point of view of getting profits is, of course, as important as that of growing, must be given attention before that time. Procure during the summer second-hand onion crates from your local grocer or fruit stores. When your crop is far enough along so that you can estimate the number of bushels you are likely to have, find out about market prices. If the price is high—a dollar and a quarter or more a bushel—it will pay to begin harvesting and marketing just as soon as the bulbs have attained full size. The stores will take them even if some of the tops are not quite dry where you have cut or pulled them off. You should arrange, also, to dispose of as many as possible to your friends or neighbors, or to families with a store-room or cellar of any kind, who can use at least one bushel. They will not want the onions until they are thoroughly dried and firm, ready to keep for winter, *but you should get the orders ahead*.

Another important point is to carefully grade your product. Put aside the very smallest, those of half an inch or so in diameter, for pickling; the medium sized ones into seconds; and the largest into first grade.

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I well remember an acquaintance of former years, a man who was a good judge of property. He made it his business to buy neglected farms, "reclaim them, as it were, and sell them at considerable profit. He was a good business man!

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Gardening for Young Folks

Conducted by Ellen Eddy Shaw

The Botanical Merry-Go-Round

YOU plant a garden and your mind is thrown forward to the time when blossoms appear or fruit is formed. That is the result we are after. Ask any child this question, "For what purpose does a plant have blossoms?" And the child usually replies that the flower is for beauty. Now there is no deep-seated desire on the part of Nature to make this world beautiful for you and for me to live in. The only reason at all for the existence of flowers is so that a plant may reproduce itself. Life moves in a circle, not a vicious one; an adult form, an embryonic form, again an adult. In plant life there is blossom, seed, plant, blossom, and again seed. So is the round completed, a botanical merry-go-round.

Beyond the mere botanical analysis of a flower is a realm of what might be called fairy tale lore. I suppose it is better to start off knowing the parts of a flower, those skeletons upon which the life story of the plant is hung. A flower is complete when it contains all its parts. Take any common flower — pansy, geranium, nasturtium; it is made up first of an outer envelope, which may be tubular as in the nasturtium. This envelope is called the calyx, its separate parts, sepals. Often this envelope is green—that is, it contains chlorophyll. The second envelope is called the corolla, made up of separate parts, the petals. These parts are often colored and represent that portion which impresses most of us with the beauty of the plant. Now these envelopes are not essential to the great life process of reproduction. When a flower has neither of these flower envelopes it is said to be naked. When only one set of the floral envelopes is present we call the flower apetalous. To illustrate this point force out the buds of an elm twig. These flowers are apetalous.

Twig of Red Maple showing staminate and pistillate flowers. The stamens and pistils are borne on separate flowers

Now we come to those parts of the blossom which have directly to do with the formation of seed. There are two sets of these organs—the stamens and the pistil. The stamens appear next the floral envelopes and surround the pistil. The expanded head of the stamen is called the anther. In this the pollen is produced; and the anther is borne on a stalk called the filament. The pistil is the central organ, the most important in the plant. It is composed of three parts: the upper portion or stigma; the stalk, or style; and the expanded lower portion or ovary. Within the ovary are ovules, which are immature seeds awaiting fertilization from the pollen. So it is the pollen, the quickening power, which, falling upon the stigma and passing down the style, fertilizes the ovules.

Shows ripe stamens ready for pollen to be taken. Pistil has been removed

Why are flowers in a head? Accident? Oh, no! Such an arrangement is conspicuous; the honey is not, as in tubular flowers, at the bottom of long tubes, but lies exposed so that many little insects play into the act of fertilization. And usually, in these flowers, stamens and pistils ripen at different times. For the most part insects and flowers dwell together in unity and to mutual advantage. Of course, there are some plant forms—like sundews, pitcher plants, etc.—which are insect traps and devour insects.

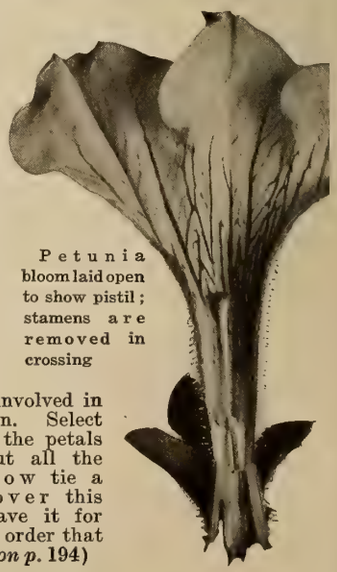
It may be held in mind for a sort of general rule that wind-fertilized plants bloom early in the season when wind is high, produce a great deal of pollen because of the amount they lose, and that the flowers open before the leaves appear. Otherwise much pollen would drop on the leaves and be sidetracked.

Crossing of Plants

IF BEES, insects and the wind can do the work of cross-fertilization, why is it not possible for a boy or girl with brains to do the same? Of course, we have to remember always that these other assistants of Nature are not setting out deliberately to do this work; it is incidental, even accidental. But if you really wish to experiment a little for yourself, remember that it is better to cross flowers of the same family. If you choose sweet peas, then cross the blossoms on one plant with those of another. Do not cross a sweet pea and a nasturtium; cross nasturtiums with nasturtiums, and sweet peas with sweet peas. Let us suppose, then, we are working with sweet peas.

First, you understand, the pollen from the stamens of one blossom should be put upon the pistil of another; the pistils and stamens are the only floral parts involved in this operation. Select a bud, open the petals and take out all the stamens. Now tie a paper bag over this bud, and leave it for three days in order that

(*Continued on p.* 194)



Petunia bloom laid open to show pistil; stamens are removed in crossing

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Send for Catalog Correspondence Invited

the pistil may be ready to accept the pollen which you are going to place upon it. Remember to have your hands and your knife blade very clean. Alcohol is the best possible cleanser to use. Now choose the flower from which you wish to take the pollen. Cut open the little pollen bags of the stamens and rub the pollen from these on to the pistil which has been so safely bagged waiting for its guest, the pollen. Again bag the doctored pistil. Try this experiment with a number of plants and keep a numbered record of each. The stamens from which the pollen came represent the father part of this experiment; the pistil which receives the pollen is the mother part. Keep the seeds which you obtain from this experiment and, by planting them the next season, you can tell for yourself whether the plant children are like their father or mother, or resemble both parents.

Salsify for Next Year

WHEN you plant salsify, which should be as soon as the ground can be worked even if a freeze follows the planting, put in more than you will need when it is ready for use in the fall. If planted in late March or early April it will be ready to be dug in mid-September, but it will be neither so large nor so good as in late October, and it keeps right on getting bigger and better until the ground freezes. When this happens there should still be enough in the garden for spring use. The following spring will find it of even better quality, and it is a time when something out of one's own garden is doubly welcome. Go after it as soon as the ground thaws enough to use a fork for digging it, and get it all out before it resumes growth, for then it turns its attention to seed production and quickly deteriorates. I have dug salsify in April that had been planted in March of the preceding year, and found it, after thirteen months in the ground, during four or five of which it had been frozen, the best of the crop.

Penn. W. L. W.

The Value of Leaf Mold

WHEN a farmer has a piece of new land at his disposal, especially the site of a wood which has been cleared away or of a fencerow that has been thrown out, almost by instinct he will plant it first in potatoes. The abundant crop of large clean tubers that is almost sure to result proves the farmer's wisdom of choice in such a matter. Yet few men realize that the good crop results from the presence in the soil of large quantities of leafmold—the product of disintegrated leaves, turned by nature's alchemy to soil again. From soil to sap, from sap to leaf, and from leaf to mold and soil again is nature's round of vegetable life. And leafmold is the garden's most natural, most complete fertilizer. It contains all the elements necessary for growth; and some of these it contains in a high degree. The presence of much available potash is responsible for the fine potatoes grown in new land.

The same result can be obtained by using new soil on old land—by using leafmold in the garden. It produces potatoes better than it does any other crop, and it is more effective in producing an early crop than a late one. This is because the early crop may be gathered before the worst heat and drought of summer, which are liable to dry out the leafmold. It may be applied in any quantity to the land being prepared for potatoes. Aside from its fertilizing power, it has a mechanical effect on the soil, rendering it mellow and friable.

To test the comparative superiority of leafmold over ordinary garden soil in the production of certain crops, a pit 6 by 18 feet and 2 feet deep was dug. This was filled with pure leafmold. Beside it was an ordinary garden bed of the same dimensions. In each bed there were planted vegetable seeds of the same pedigree; in the case of potatoes, the tubers, being of medium size, were cut in half, one of the pieces being planted in each bed. After equal attention, the following results were obtained: For tomatoes, green peas, lettuce, sweet corn, peppers, and lima beans, the ordinary garden

(*Continued on p.* 196)

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soil appeared superior, although all the vegetables grown in the leafmold were more tender and more delicate in flavor. For white and sweet potatoes, beets, string beans and radishes, the leafmold proved itself the better soil. In the case of the white potatoes, one hill in the leafmold yielded twenty-six edible tubers, while the corresponding hill in the garden soil yielded but eight edible ones, all inferior in size, shape, smoothness, and flavor.

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When not obtainable from the woods, leafmold may be made by packing leaves in a pit. So treated, the leaves will be ready for use in a year's time.

Penna. Archibald C. Rutledge.

Irises Laevigata and Kaempferi

FOR some years I have been collecting beautiful garden forms of Iris, particularly the bearded species, and for the past year have been much interested from a botanist's viewpoint. Inadvertently, I have started a discussion among the botanists in Washington, D. C., by an inquiry as to where, in this country, I might obtain a root of *Iris laevigata*, as distinct from *Kaempferi*, and so described in the monograph on the Iris by W. R. Dykes of England. The botanists at Washington take issue with Mr. Dykes. I infer from this book that Mr. Dykes has never been in Japan and has based his divisions upon collected forms in large public gardens in England. In a small gardening series volume, which I have, he states that *Iris laevigata* is one of the most beautiful of *blue* irises. The true *Iris Kaempferi* he describes as a *reddish purple* which, in his experience, always comes true from seed. This is an interesting statement in view of the myriad hybrid forms obtained by the Japanese. Can Mr. E. H. Wilson, with his wider experience of travel and observation of plants in their native conditions, help me in a decision as to who is right?

Ella Porter McKinney.

—On the moist, grass-clad moorlands and in the swamps of northern Hondo and in Hokkaido, an Iris with reddish-purple flowers (the tint varies somewhat) is very abundant and this Iris is considered by the Japanese to be the wild parent of the garden Iris we term collectively Japanese Irises. Personally, I see no reason to question this and am firmly of the opinion that the multifarious forms of Japanese Iris are seminal variations and color sports from this one wild prototype. This Iris was named and figured by Lemaire ("Ill. Hort." V. t. 157, 1858) *Iris Kaempferi*. But in 1839, Fischer and Meyer ("Ind. Sem. Hort. Petrop." III. 36) gave the name *Iris laevigata* to an Iris from the Transbaickal region of eastern Siberia (Irkutsk and Dahuria) and botanists—American, European and Japanese—have considered this Iris and that of Lemaire one and the same, and by rules of priority the older name of *I. laevigata* had to be used and Lemaire's *I. Kaempferi* became a synonym.

I have not Mr. Dykes' book, neither have I sufficient knowledge of the Iris family to delve into the question as to whether the continental and the Japanese plants are identical. Certainly I have no reason for questioning the correctness of the view of those botanists who do so consider them. But, this question aside, my observations in Japan have convinced me that the so-called Japanese Irises have all been derived from the one common species with "reddish-purple flowers," and not from two different species.

E. H. Wilson.

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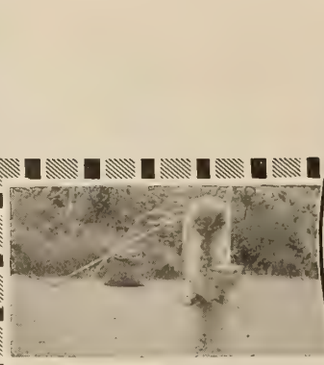

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Making the Greenhouse Really Pay Its Way—W. C. McCollom

THE greenhouse, during April, should be crowded from floor to peak with hundreds of varieties of plants for all purposes — seedlings for the flower garden and vegetable garden; bedding plants for the formal garden; cuttings and seedlings of various plants for next winter's supply of flowers in the greenhouse; bulbs being started for summer flowers in the greenhouse; some high quality Water-lilies for the pool in the garden.

There is no excuse for plants not doing well in the greenhouse at this season of the year. During the short days of winter, all forcing plants require close watching, and any errors in cultivation are liable to result disastrously; but during April the plants feel the effects of a real "growing atmosphere." Little fire heat is required; the plants have an abundance of fresh air because of increased ventilation; a little carelessness in overwatering, while not advisable, will do no harm.

Many easily grown *bulbous plants* that can be forced in the greenhouse during the summer should be started at this time. One of the very earliest blue flowers is the blue Achimenes; the Tuberous Begonia is very showy and makes a fine pot plant; for yellow flowers during summer, try the Yellow Calla, which does exceptionally well in the greenhouse in summer but does not amount to much as a winter forcing plant. The gorgeous Gloxinia has no competitor for richness of color, and cold storage Lily bulbs can also be forced.

All these and many others are summer possibilities for the greenhouse. Potted fruits are also recommended. No special house is required, the plants yield quick returns, and the fruit is of a very high quality. The trees should be started now so as to be finished and out of the way before fall operations start. Apples, pears, peaches, grapes, in fact all forcing fruits are possible; or a crop of melons can be started. A few plants of the English frame cucumbers will supply the family with fresh, crisp cucumbers all season, or you can concentrate on tomatoes.

In the line of present spring work, *all cuttings possible* should be made of the various spring bedding plants, such as Coleus, Geraniums, Alternanthera, Achyranthus, etc. Cuttings should also be made now of a number of various plants for next winter's supply of flowers in the greenhouse. Use cuttings of Gardenias, Hydrangeas, Pelargonium, Paris Daisy, Swainsona, Stevia, Fuchsia, etc., for the purpose. These plants are usually grown along in pots after the cuttings have rooted. A big batch of Chrysanthemum cuttings should be "struck" now. April cuttings produce very fine flowers.

You will need some *"greens"* to arrange with the cut flowers next winter. Start them now. Smilax, Asparagus plumosa and Sprengeri, are good and should be planted in the benches. You can also utilize what would otherwise be waste space by planting under the benches, but on the edge of the walk, a number of the hardy Ferns, such as the Pteris, Polypodium, Cyrtomium, Aspidium, Blechnum, etc., which are excellent for cutting and last well.

The greenhouse should be simply bulging with all kinds of *seedlings for the outdoor garden.* The seeds are sown in boxes or pans and when the seedlings are large enough they are transferred to other boxes or prepared beds, planted about two inches apart. Small sticks, "dibbles," are used for this purpose.

If you haven't already sown *flower seeds*, do so at once. Sow Ageratum, Balsam, bedding Begonia, Calendula, Clarkia, Lavatera, Petunia, Salpiglossis, Verbena, Zinnia, Wallflower, Arctotis, Aster, Amaranthus, Marguerite Carnation, Celosia, Cockscomb, annual Chrysanthemum, Dianthus, Gaillardia, Heliotrope, Kochia, Forget-me-not, Salvia, Scabiosa, Nasturtium, and Castor Oil, in pots, etc.

Vegetable seedlings should have been started a little earlier, but if you have not done so, you can sow at once celery, cabbage, cauliflower, lettuce, tomatoes (cucumber, watermelon and muskmelons in pots), eggplant, peppers and, if you have the space, a few pots of early dwarf corn similar to Golden Bantam. These can be set out in May and will beat by at least two weeks the outside sown corn.

For *plants to force* in the greenhouse for next winter's use, sow seed now of such plants as the Plumed Celosia, Heliotrope, Antirrhinum, Canterbury Bells, Salpiglossis and Primulas, all of which are potted up when large enough to handle and are carried over the summer in pots in a coldframe. They can be benched in the greenhouse during early fall, excepting the Primula, which is a pot plant, and the Canterbury Bell, which is left in a frame or storage pit until midwinter, as it is a cropper and not a continuous flowering plant like the others.

"Standing room only"! Strawberries in pots on the shelf; Carnations in the rear bench; boxes of seedlings; Chrysanthemums for fall flowers, etc.

You should also have in your greenhouse collection some of the tropical *flowering vines.* They will occupy very little space if properly trained on the north end or side of the greenhouse, and will not shade the other plants. These vines can all be propagated from cuttings made now and are rapid growers: Allamanda, having one of the best of all yellow flowers; sweet scented Jasmine; showy Plumbago; the odd but pretty Aristolochia; the exquisite Lapageria; and the highly perfumed Stephanotis.

All the *hard-wooded forcing plants* used in the greenhouse during winter require some attention at this time. They are usually plunged out of doors late this month. Immediately after flowering, the plants should be rested completely to ripen up the wood, and those that require it should be repotted. Plants of this class are the Acacia, Genista, Wisteria, Lilac, Clematis, Azalea, Deutzia, etc.

There are a number of *perennials from seed* which, if started now, will flower this season. These should be grown along briskly in the greenhouse until they can be set out toward the end of May. The single Hollyhock, Pentstemon, Delphinium, and several of the Rudbeckias will all flower. In fact, all perennials can be started in this manner and about 50 per cent. of the plants will flower the first season.

If you want to keep the *Carnation* in good condition, the house should be shaded with a slat trellis of some description. Plant out-doors late in the month the young plants for next winter's supply of flowers.

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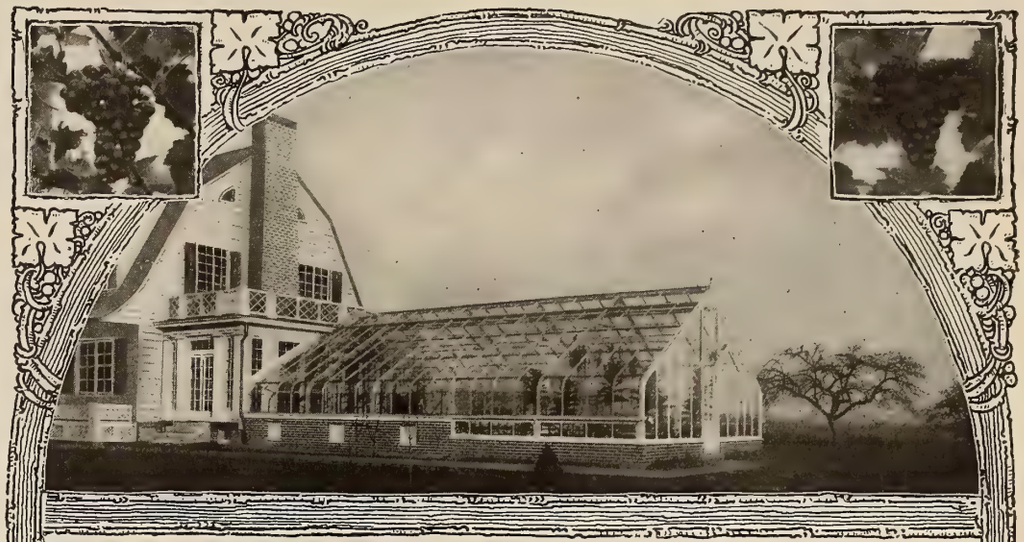

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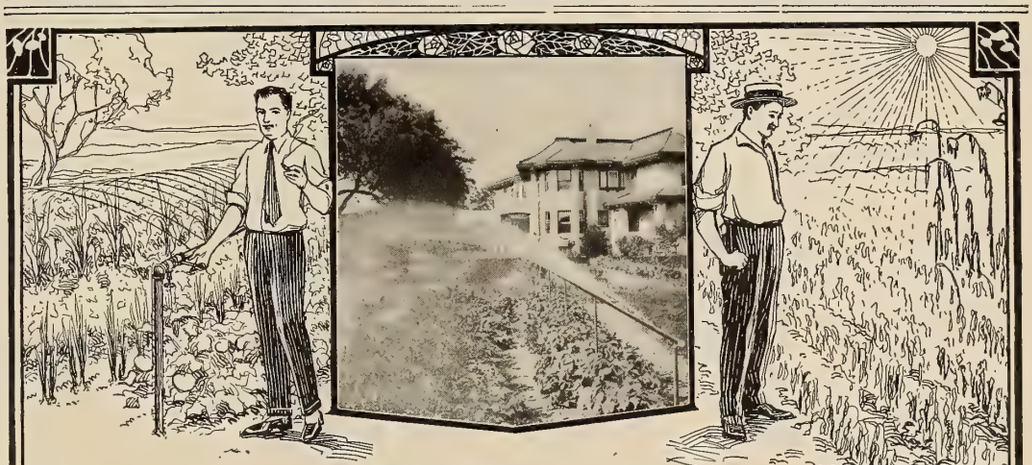

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This department will help in dealing with general conditions. It cannot render personal professional service

Gladiolus Bulbs and Bulblets

In digging up the Gladiolus bulbs last fall, some very small bulblets were found growing out of the bulbs. If we plant these new bulbs, the ones which grew on top, will they bloom this season, or will they form bulbs for blossoming the following year?—H. L. K., Indiana.

—The renewal bulbs of the Gladiolus produced on the top of the old bulbs will flower this coming season. The bulblets can hardly be expected to bloom this season. The larger ones may bloom next year and the smaller ones in proportion to their size. Some varieties may make more than one bulb of flowering size. The young offsets and bulblets can be sown in nursery rows like peas and grown on year by year until they are large enough to produce flowering plants.

Reclaiming an Old Hemlock Hedge

I have a Hemlock hedge that twenty years ago was about four feet high and in perfect condition, but it was permitted to run wild and now has grown into practical individual trees 10 to 15 feet high, and the under part, where the hedge should be, has died from lack of light. If the plants are cut back to this dead growth, will the hedge die, or will it sprout out again if the pruning is done at a certain time of the year?—B. F. G., Washington, D. C.

—If these Hemlock trees are vigorous, with good root condition and with plenty of fertility in the soil and can be well supplied with water, there is no reason why you should not get the hedge under control by heading it back slowly. One reason that the Hemlock is a good hedge plant is because of its ability to stand severe cutting back. Of course, any radical cutting back will be trying to the plant, but by cutting back the trees moderately each successive year and gradually reducing the head, the result wanted should be obtained in from three to five years.

Do Cucurbits Mix?

If cucumbers, watermelons and muskmelons are planted close together, will they mix?—W. H. T., New York.

—Cucumbers, watermelons, etc., will not mix the first year no matter how closely planted; that is, the fruit resulting from the flower of one such vine, fertilized by the flower of another, will not be a hybrid but will exhibit the characteristics of its pistillate parent. If, however, the seed from this fruit is planted, the fruit that forms on the resulting plant will be a hybrid resembling to some extent each of its ancestors.

Small Fruits for Market

I have 14,137 square feet of land that I want to plant with currants, gooseberries, raspberries and blackberries, intending to sell the fruit in market. What varieties do you recommend for the purpose; how far apart should the plants be set, and how far apart the rows? The soil is heavy loam with a clay subsoil; exposure is bleak. Should manure be applied, and is it necessary to add any other fertilizer when planting?—F. C. G. A., Mass.

—The common planting distances for bush fruits are as follows: Currants and gooseberries, 4 x 5 feet; raspberries, 3 x 5 feet; blackberries, 4 x 7 to 6 x 8 feet. These may, however, be slightly varied when necessary, either increased to make horse cultivation easier or lessened where hand tillage is to be practised. At these distances your piece of land should hold about 725 plants. The distribution of the different sorts must be determined by you, according to your preference for one or the other and the demands of whatever market you expect to supply. As to varieties, we suggest the following: Currants: Wilder and Red Cross (red); White Grape (white). Gooseberries: Downing (green), the standard sort; Industry (red); Whitesmith and Keepsake (yellow). Raspberry: Cuthbert and King (red); Gregg (or one of its more recent forms), Scarff (black); St. Regis Everbearing (red). Blackberries: Snyder, Agawam, Eldorado and Joy. It is almost impossible to apply too much manure to the soil, provided it is well rotted and thoroughly worked into the soil. Whether fertilizer is needed depends on the quality and condition of the soil. It would certainly do no harm, however, to add a moderate application of a complete garden fertilizer just before planting the bushes.

Asparagus at the Bottom of a Hillside

I have an asparagus bed injudiciously placed near the bottom of a hillside; the water seeps through the soil and last summer almost destroyed the bed by gullying through it. I have had a trench dug at the top of the bed and through the centre to carry off the water; my problem is now how best to save and hold the trench.—R. C., Maine.

—It is frequently possible to prevent the occurrence of excessive moisture at the bottom of a slope by running one or more lines of drain pipe transversely across the bottom of the hill so that they will pick up the water as it seeps downward and carry it around instead of into or through the garden. Such results might also obtain from the use of a trench such as you mention, except that this would remove only surface water and would not reduce the excess of seepage flow. On the whole, it would seem as though much future expense and trouble could be saved by moving your asparagus to a better drained position at the earliest opportunity. One of the important principles of good gardening is the following of the line of least resistance—that is, the obtaining of maximum results with the least expenditure of time, money and effort.

The Everbearing Strawberries

I have 1½ acres of strawberries; half of this is last spring's bed, the other half having been planted the previous spring. I have about 1,000 feet of Everbearing; does this require any different cultivation from the spring variety? Are wood ashes and hen manure a good fertilizer for strawberries? How should it be applied? Should the blossoms be kept picked off the Everbearing plants during July and August, the plants being allowed to bloom and bear from then on?—C. E. T., Mass.

—We are unable to learn that the Everbearing types of strawberry require anything different in the way of cultivation, feeding, etc., from the standard, spring bearing sorts. Unleached wood ashes and hen manure are both valuable materials for all garden crops, but they should not be applied to the soil at the same time nor mixed previous to their application. Spread the manure and fork it well into the soil, and then add wood ashes and rake them in thoroughly. Different growers seem to have achieved success with the Everbearing berries by adhering to both the methods mentioned by you. We believe that the large forms of this type require a little rest and that it is well for the plants to have a little rest during a part of the summer. At the same time, however, it seems that this is not essential unless the grower desires berries of a specially high quality and large size.

The Ibota Privet

Is the Ibota privet hardy, does it blight, and will it remain green in the winter?—D. L. P., Virginia.

—We do not quite understand what you mean when you speak of "blight" on Ligustrum Ibota. In the North this privet is deciduous and reasonably hardy. In the South it holds its leaves over winter, but is not what is understood as an evergreen for an evergreen carries its leaves more than a year. The Ibota sheds its leaves while new ones come on. The effect is that of an evergreen plant, but it is not an evergreen in the strict sense of the word. You will be able to grow in your region Ligustrum lucidum which is evergreen but which is not hardy at New York. There is considerable confusion as to what "Ibota" really is, and the form offered under the name Regelianum is a more serviceable plant. As to whether or not Ibota will remain green in your region would depend on general growing conditions, exposure, soil drainage, etc. If it does not hold its leaves for the entire twelve months it would be bare only a small fraction of that time.

Border Plants

My house, about 30 x 50 ft., on a corner lot 100 x 107 feet, is about 25 feet from the walk; on both sides of the walk from the street to the front porch are borders two feet wide and fifteen feet long, in which are Tulips, Jonquils and Daffodils. Following their blooming period I have difficulty in keeping the beds attractive. I have tried German Iris, interspersed with Petunias and Portulaca, but annuals do not cover up the coarse browned leaves of the Iris during July and August. The beds are entirely exposed to the hot sun all day. What plants can I use to give an effective succession of bloom?—N. R. H., Mo.

—Of course the whole of the border cannot be in bloom at one time unless you adopt the bedding out system. The situation described seems to be well fitted for Iris. You do not have much space to plan for a continuous effect, and you must make up your mind that, if you want to get the greatest effect, you will have to fill in the border with available material for the rest of the season. A border two feet wide is too narrow for a very effective treatment. It should be at least three feet wide, and four feet would be better. Among plants that would be available are perennial Candytuft, Sedum spectabile, creeping Phlox, Veronica repens, Gypsophila repens, tufted Pansy, Bugle, Thrift, Leadwort, various Scotch and border Pinks, Iceland Poppy, Stoke's Aster, Carpathian Harebell, Garland Flower, Forget-me-not, Rock Cress, Globe Flower, Coral Bells.

Color Charts

Is there any color chart or book I could get so as to be able to distinguish between the many different shades of colors in flowers, so that I can learn how to combine them properly?—I. J. L., Iowa.

—We hardly think a color chart will be of much service to you. However, if you wish to obtain a color chart we would refer you to "Color Standards and Color Nomenclature," by Mrs. J. E. Ridgway, Olney, Ill., price $8.10. This is the latest book on the subject printed in this country. "The Colorist," by Hatt, price $1.80 postpaid, is a most suggestive little treatise. But, after all, successful color combinations are largely a matter of personal skill and invention. One can be taught the principles of color harmony, but the application of these principles is a matter of the individual.

Renovating an Old Orchard

Which would be the most profitable: the pruning and spraying of about twenty-five old orchard trees, bearing fairly well, planted 16 to 40 feet apart or the planting of a new orchard? Could the new orchard be successfully started under the old trees?—T. W. H., Pa.

—We cannot say definitely. It depends largely on the condition of the trees. Of course, it is much easier to take care of an orchard that is planned and planted all at one time and at one operation, but it might be a good deal cheaper now and fully as satisfactory later on to simply cut out the worst of the trees, prune and bring back the remainder, and fill all the gaps in the orchard with new two or three year old trees. Later this replacing could be continued as the old trees die out, until finally a new orchard results.

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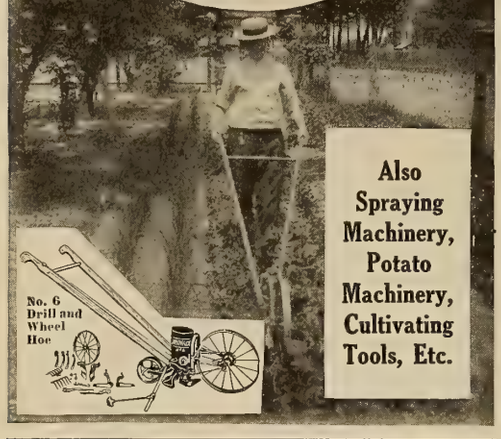

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Coming Events — Club & Society News

Meetings and Lectures in April

1, 2. Fourth National Flower Show, Philadelphia, Pa.
American Rose Society, Philadelphia, Pa.: exhibition at Fourth National Flower Show.
3. New Bedford, Mass., Horticultural Society: meeting.
Colorado Florists' Club, Denver, Colo.: meeting.
Retail Florists' Association of St. Louis, Mo.: meeting.
4. Buffalo, N. Y., Florists' Club: meeting.
Florists' Club of Philadelphia, Pa.: meeting.
Florists' Club, Washington, D. C.: meeting.
Knoxville, Tenn., Florists' Club: meeting.
Minneapolis, Minn., Florists' Club: meeting.
Pittsburg, Pa., Florists' and Gardeners' Club: meeting.
State Florists' Association of Indiana, Indianapolis, Ind.: meeting.
5. Short Hills, N. J., Garden Club: meeting.
Kentucky Society of Florists, Louisville, Ky.: meeting.
5-12. International Flower Show, Grand Central Palace, New York City.
6. Marshfield, Mass., Garden Club: meeting.
Chicago, Ill., Florists' Club: meeting.
Dayton, Ohio, Florists' Club: meeting.
Milwaukee, Wis., Florists' Club: meeting.
Terre Haute, Ind., Florists' Club: meeting.
7. Pasadena, Cal., Horticultural Society: meeting.
8. Dobbs Ferry, N. Y., Horticultural Association: meeting.
10. Germantown, Pa., Horticultural Society: exhibition.
Rochester, N. Y., Florists' Association: meeting.
New York Florists' Club, N. Y. City: meeting.
Park Garden Club, Flushing, L. I.: meeting.
Cincinnati, Ohio, Florists' Club: meeting.
Garden Club, New Rochelle, N. Y.: meeting.
11. Syracuse, N. Y., Rose Society: meeting.
12. Nassau County Horticultural Society, Glen Cove, N. Y.: meeting.
Short Hills, N. J., Garden Club: meeting.
Morris County Gardeners' and Florists' Society, Madison, N. J.: meeting.
13. Albany, N. Y., Florists' Club: meeting.
Omaha, Neb., Florists' Club: meeting.
St. Louis, Mo., Florists' Club: meeting.
14. Connecticut Horticultural Society, Hartford, Conn.: meeting.
17. Florists' and Gardeners' Club of Rhode Island, Providence, R. I.: meeting.
18. Gardeners' and Florists' Association of Ontario, Toronto: meeting.
Gardeners' and Florists' Club of Boston, Mass.: meeting.
Portland, Ore., Floral Society: meeting.
19. Rhode Island Horticultural Society, Providence, R. I.: lecture and meeting.
Tarrytown, N. Y., Horticultural Society: meeting.
Short Hills, N. J., Garden Club: meeting.
20. Marshfield, Mass., Garden Club: meeting.
21. Pasadena, Cal., Horticultural Society: meeting.
22. Dobbs Ferry, N. Y., Horticultural Association: meeting.
24. Park Garden Club, Flushing, L. I.: meeting.
26. Short Hills, N. J., Garden Club: meeting.
27. Minnesota Garden Flower Society, St. Paul, Minn.: meeting and lectures.
28. Connecticut Horticultural Society, Hartford, Conn.: meeting.

International Flower Show

The annual New York spring flower show, under the direction of the Horticultural Society of New York and the New York Florists' Club, to be held at the Grand Central Palace, April 5-12, will be remarkable for the great increase in large group exhibits. Indeed, the management is much taxed to find appropriate accommodation for late comers. As in former years the ladies' auxiliary will add to the general interest. This season the New York Chapter of the American Red Cross will have charge of the tea garden each day of the show and the proceeds will be distributed as follows:

Wednesday, April 5th, Vacation War Relief Fund and the American Branch for French Wounded. Thursday, April 6th, American Ambulance Hospital Fund. Friday, April 7th, Belgian Relief Fund. Saturday, April 8th, German Relief Fund. Sunday, April 9th, Jewish Relief Fund. Monday, April 10th, British American War Relief Fund. Tuesday, April 11th, Polish Relief Fund and Serbian Relief Fund. The chairmen of the various committees are Mesdames Wm. Prime, Jr., Ethelbert Nevin, Robert Bacon, Pierre Mali, Hugo Reisinger, Philip Lewisohn, Nicholas Murray Butler, Linzee Blagden, Cadwalader Jones, Lady Herbert, Miss Hasting. The following lectures will be held: 6th, E. H. Wilson, "Gardens and Plants of China and Japan"; 7th, George V. Nash, "Water Gardens"; 8th, Conference on the Outlook of Horticulture; Mr. Arthur Herrington will lecture at 11 A. M. Monday, April 10th, on "Irises for American Gardens," illustrated with colored lantern slides. General Leonard Wood, U. S. A., will speak on Preparedness, April 11th; and on the 12th, Child's Welfare League. Each afternoon and evening there will be exhibition dancing by members of the Russian ballet, exhibition roller skating, etc. Messrs. Lawrence G. White and Frederic R. King have designed the tea garden and are attending to the installation and decorations.

New York Summer Show

The International Garden Club is to be congratulated in having taken the initiative in arranging for a summer exhibition of flowers, etc., June 1st to 4th at the Club House and grounds, in Pelham Bay Park, New York City.

Tea Garden decorations at the International Flower Show designed by Lawrence G. White and Frederic R. King

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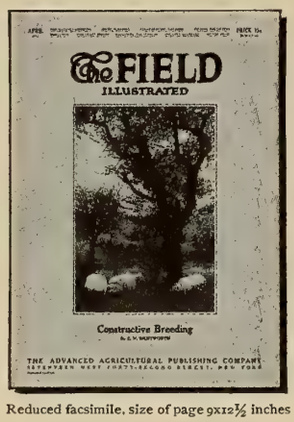

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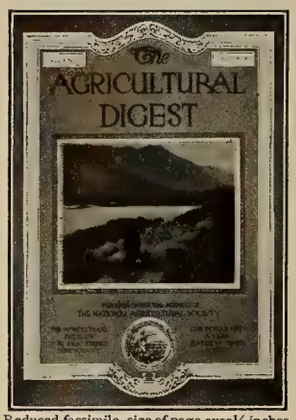
Constitution

Article II

The objects of this Society shall be as follows:

(a) To effect an organization non-partisan and non-political which by its unquestioned sponsorship and membership shall command general confidence and afford a common mouthpiece for the varied and diversified agricultural interests of the country on matters of National concern.



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DOUBLEDAY, PAGE & COMPANY Garden City, New York

Preventing Frost-Blasting of Strawberry Blossoms

OFTEN a cold snap may occur just when the strawberry plants are in full flower, with the result that there is a partial or total loss of the crop due to the blasting of the bloom. When the thermometer registers below 32 degrees the pollen grains and the cells of the pistils and the stamens upon which fertilization of the blossoms depend are generally ruptured by the formation of ice crystals inside them; when the freezing point is not reached, but when the temperature continues below 40 degrees for several days and nights, the damage may be just as great, but in this case be due to what may be designated a paralysis of the reproductive parts of the flower, a condition which no subsequent warm weather seems able to correct.

As a general rule strawberry plants are protected during winter by mulches of marsh hay, straw, corn stalks, etc., from damage due to alternate freezings and thawings. When spring opens these mulches are removed to the interrows or sometimes taken from the field altogether. The former is the better plan, especially as it fits in with the protective practice, which consists simply in covering the plants should the temperature fall below 45 degrees, for the few days they continue in bloom. Should the straw have been removed from the plantation it may be spread fairly quickly from wagons or carts. As soon as the danger is passed it must be raked off the plants. While it covers the plants it checks the radiation of heat from the plants themselves and also from the ground, and helps to form a warmer layer of air around the plants. In one plantation where the straw was three times spread by hand because the owner feared frost each time the cost was less than ten dollars an acre.

An improvement on the hand method, which is applicable only to comparatively small areas, would be to use a hay tedder run crossways of the rows. To be sure this would not do as good a job as the hand method, but it would have the merit of getting over a very considerable area in a comparatively short time and at a very much reduced cost.

In cases where the ground is bare, as when the mulch is carted off the plantation, shallow cultivation toward nightfall would probably prove helpful, since it would fill the air with moisture which, on deposition, would raise the dew point and thus prevent frost injuries. Spraying with water in the evening would have the same effect. In small areas these latter methods might be combined very advantageously with the mulch method.

Penna. M. G. Kains.

Blackberry Raising Made Easy

IN THE spring a few years ago I decided to plow under an old blackberry plantation in one of my young apple orchards. The orchard needed better culture than I could give between the berry rows, and the blackberries themselves had ceased to yield their former large crops of big juicy berries.

After mowing and raking off the old canes, I plowed the entire piece to a depth of about eight inches in April and immediately gave the land a thorough working with the cutaway harrow. I continued to harrow at intervals until new shoots began to come up from the blackberry roots all over the piece, but thickest along the lines of the old rows. These new shoots

looked so good that I decided to let them grow and see what they would do. I harrowed several times after this, driving over the plants but cutting off very few.

When the plants were too large for the harrow, the weeder kept the soil loose and the weeds from growing until about the middle of July, when I left them to take care of themselves. The following April I top-dressed the field with 100 pounds of nitrate of soda, 100 pounds sulphate of potash, and 300 pounds basic slag to the acre, and did nothing else for them until the berries were ripe in August. I kept no record of the yield, but it was such that one could fill a quart basket without moving. This experience proves that only a few hours' work with a team and no hand hoeing or weeding are sufficient to raise all the blackberries any family can use.

By plowing half of the field one year and the other half the alternate year, it is an easy matter to have an annual crop. Confine the blackberry canes to rows so as to make the work of picking the crop pleasanter; this can easily be accomplished by cultivating between the rows with some tool that would keep the suckers cut off as fast as they start.

Never set more than a few trial plants of any variety that is not known to be hardy in your own section. Snyder and Wachusett Thornless are varieties that can be depended on for hardiness wherever any blackberries will grow. There are many new varieties, some of which have points of superiority over these, but they are generally not as hardy and should only be tested at first. But set blackberries this spring and set enough of them—you will want them for sherbet, ice-cream and fruit drinks and surely for canning for winter use.

Newmarket, N. H. Alfred C. Durgin.

Raspberries as an Ornamental Screening

Many a small homestead has some unsightly places on it—lattice work, fencing and the like—which can be greatly improved in appearance or screened by planting, and nothing is better for the purpose than raspberries. For instance, my hen yards are located at the back of the premises. In front of them extends a long stretch of lattice work, running practically east and west, the front of it facing the north. Being surrounded on the south by trees in the hen yard, the land on the north side of the lattice does not receive very much sunshine. The lawn originally extended up to it, but the grass was poor near the lattice. The thought occurred to me to try raspberries.

I had considerable difficulty in finding a satisfactory place for them, for the plant is so profuse in its annual supply of new shoots that the average small garden is no place for it. The spreading habit of the fruit forces one sometimes to remove it from the garden because of its encroachment upon territory required for other crops. If put in unusual places this difficulty does not arise; and in the early spring of 1910 I put out some young plants of the red Cuthbert variety more for ornamental purposes than for the fruit. The baseboard of the lattice is raised an inch or two from the ground, allowing air and moisture to pass underneath. This keeps the bottom board from rotting, while at the same time the patch receives the drain from the henyard which slopes slightly in that direction. It remains, therefore, cool and moist even in dry seasons and at the height of summer. Raspberries delight in just such a soil, so that the partial shade given by the lattice work turned out to be a blessing in disguise.

Now, this little strip of raspberries, in addition to serving as a luxuriant foreground and relief to the monotony of the lattice work, provides me annually with about fifty quarts of delicious berries. One advantage of growing them in such a place is the prolongation of the ripening period, thus allowing fresh fruit on the table for at least six weeks and providing a surplus for canning purposes to supply the family for the year. Another advantage is that they are naturally fertilized by the drainage from the henyard. Moreover, they require little cultivation. In this latter connection I have been able to utilize the fowls to good ad-

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Respectfully yours, Edward Parker, Supt.

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I wish especially to mention the carloads of Kalmia latifolia you supplied to us three years ago; they have done remarkably well, growing like weeds and flowering fine, notwithstanding that on account of alterations being made I had to transplant them in the middle of June, but thanks to the fine ball of roots, they did not mind the moving in the least.

The perennials I have had from you from time to time have always been of the finest quality; and well rooted.

It will be a pleasure to me at any time to say a good word for the quality of stock sent out by you.

Very truly yours, Daniel Whyte, Supt.

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vantage. As a rule hens are more or less the cause of many a heartache to the gardener. But, by separating the raspberry patch from the lawn proper with four-foot chicken wire and by opening the gate to the henyard which stands at the end of the lattice work, the hens were given the run of the berry patch before and after the fruit season. This furnished the hens an excellent scratching and dusting place, the young sucker plants supplied them with a succulent green feed in the spring, and their scratching kept the canes from spreading.

Practically the only labor bestowed on the patch apart from picking the fruit consists in cutting out the dead stalks and trimming back the new shoots which are the great fruit bearers during the following season.

Maryland. James B. Morman.

Doorways to the Garden

THE connection between house and garden explained on page 176 is almost a necessity if the garden is to preserve its true relationship as a part of the general scheme.

In general the same considerations govern the doorways to the garden which govern other doors; they should be well placed and appropriately designed, and yet we can stand in our gardens things of less regular, less formal and (with bated breath I say it) less sensible character than those which we demand in our houses.

The garden gateway in the remaining picture (p. 176) is a sort of thing which could not be attached to the house, and yet it is well enough as a framework for vines. These frames are not made to be seen too much, and yet cannot be designed with the idea that they will be completely covered up: some unexpected odds and ends of them are always going to stick out, even in the summertime; and of course in the winter they are apt to be pretty bare, therefore they should be carefully designed throughout so that whatever part of them is seen is pleasant and amusing. That is perhaps after all the spirit in which garden architecture should be designed, it should be pleasantly gay, not sober nor serious; dignified if you like, and certainly not trivial. With the exception of certain of the very wonderful pieces of garden architecture of France and Italy the most successful of all gardens have had this quality. Some of the famous Italian gardens had certain features in which the designers sought to produce the effect of the grotesque and monstrous, by comparison with the lightness and gaiety of the trees and flowers, but the day of such gigantesque gardens is pretty well past.

We are all learning to work together a little better in our houses. The architect, it seems to me, has a little more confidence in the opinions of his clients than used to be the case, probably because the client's opinions are better worth having than they used to be, and I find there is an increasing tendency on the part of the client to consult with professionals in very many points for which formerly no professionals were thought to be needed. It is a very small house now that does not have an architect, and people are finding that they can get curtains plus taste from a decorator as cheaply as they can get curtains sold from a department store.

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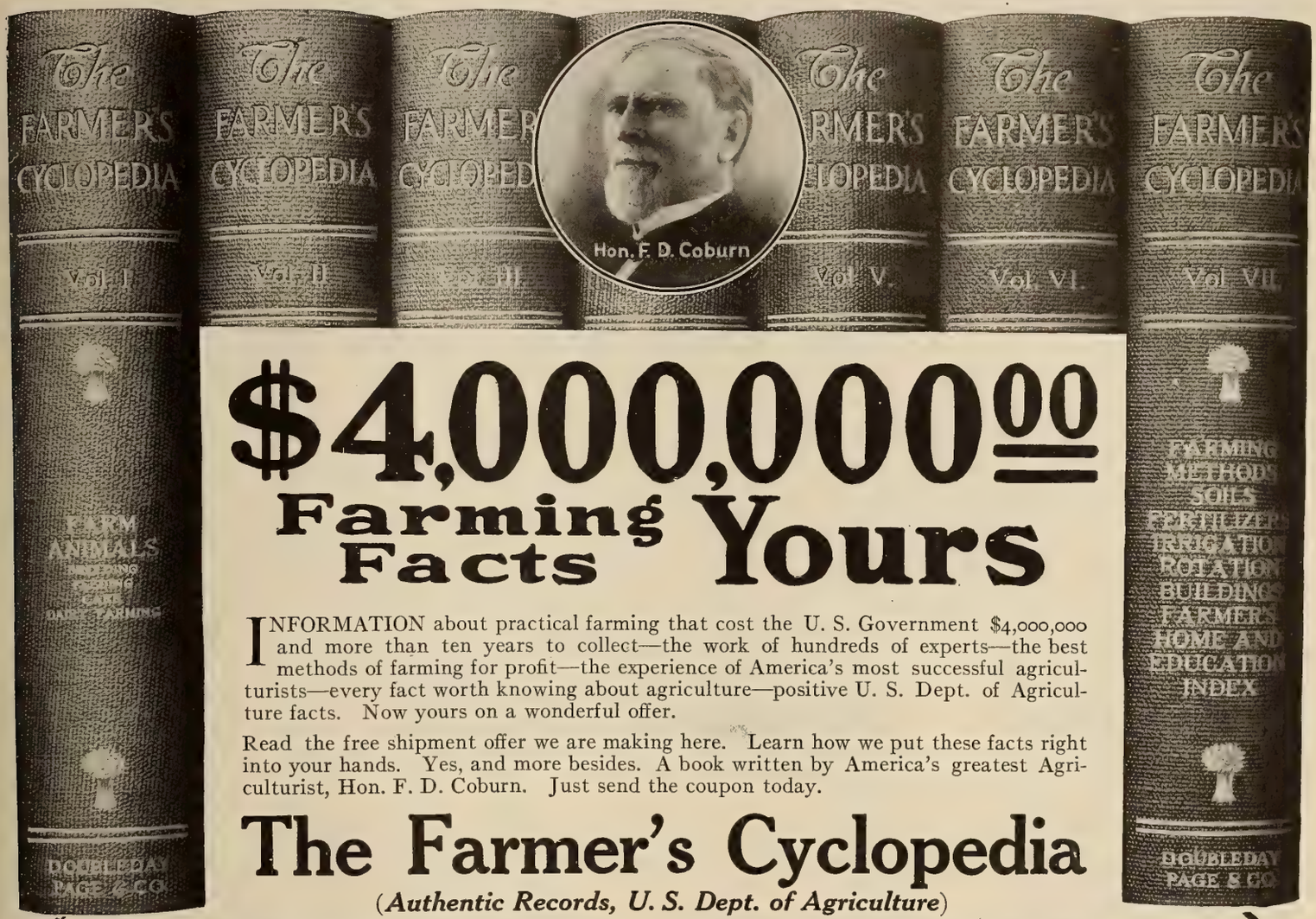

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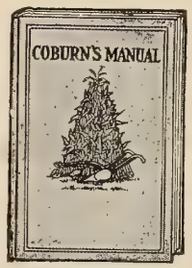

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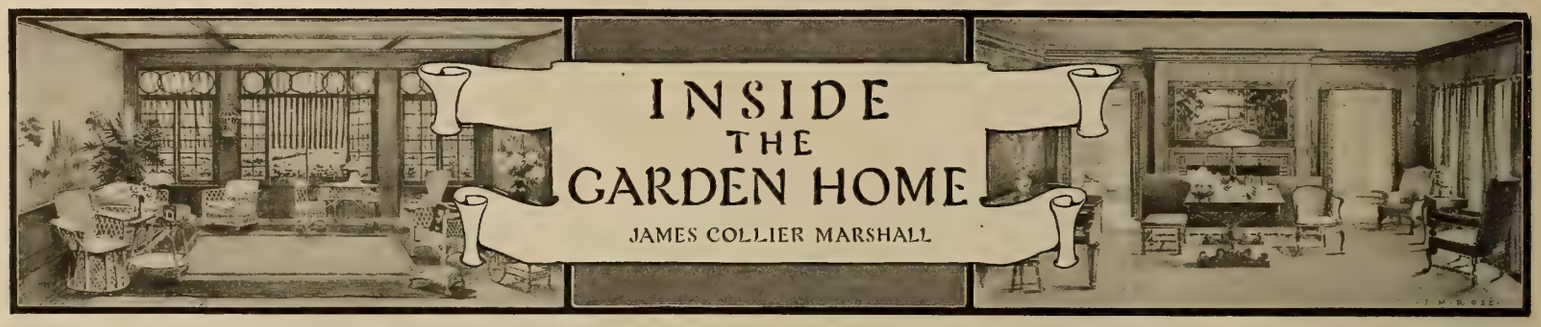

Furnishings for the Small House

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Why not brighten you hearth with hand-painted bellows like these?

IN SHOPPING for the necessary house furnishings it is easy to find good looking articles that are suitable for the large house, but not infrequently the search for fittings for the small home proves a baffling task. There is, after all, only one satisfactory manner of approaching this undertaking and that is to settle first in one's own mind just what is needed and the price one is willing to pay. One may then set forth on the quest with a light heart, for many firms, appreciating the need of attractive materials at moderate prices, are making a point of catering to it.

One of the delightful surprises of these shopping tours is the fact that frequently a remarkable bargain may be discovered in shops that are reputedly high priced, hence no shop should be omitted from the list. It is in these shops that the most desirable designs in chintzes and upholstery stuffs are always found at prices that every experienced housekeeper will recognize as reasonable. At any rate, there is no economy in buying cheap upholstery materials, though the point I wish to make clear is that these so-called high priced houses, sell stuffs at prices entirely commensurate with their values. Of course, they practically control the more interesting purely decorative articles, but here again the prices are about even.

Of the many attractive necessary furnishings to be seen, perhaps none is more effective than the oaken chest shown here. This well built box, designed on simple Jacobean lines, is lined with cedar and has two drawers of the same pungent wood. Mounted on rollers and fitted with a strong lock it is as convenient as it is good looking and equally adaptable to hall, living or bedroom uses.

Every house however small needs a writing table. This one of mahogany is not only good looking, but adaptable to many settings

Apropos of cedar chests, there is now to be found a plain box of this wood long and narrow and flat enough to fit under a single bed, for use in apartments and other small rooms where space must be conserved. This also has rollers and comfortable handles by which to draw it forth, with a lock and clasp of the type used on suit cases to make it secure. It is quite capacious and excellently suited to the rôle for which it is intended.

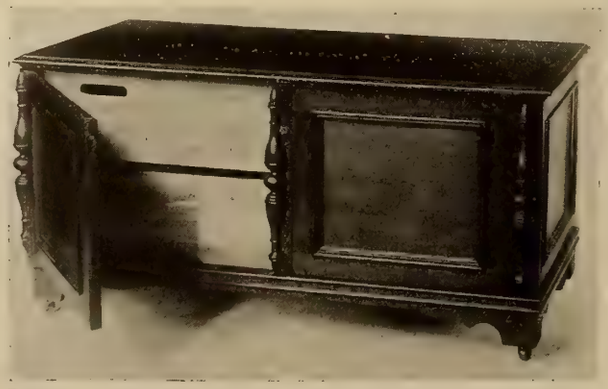
Since we Americans have begun to take our tea drinking seriously, or, less seriously, as one may choose to call it, it having become a part of our daily life, there have come into being a remarkable number of designs of tables for this use, the greater portion of which are very effective.

One of the smartest of the new patterns displayed this season is shown at the lower left side of this page. Here is a most delightful combination of pale green and natural colored wicker in the simplest architectural form with well mounted trays of glass. So simple is it that there is not one more osier employed in construction than is absolutely necessary to strength, but the effect is very good, the green, which shows dark in the picture, giving the required contrast. Such a table might be as well employed for porch service as for the house, and especially for after-dinner coffee use when some such table is found necessary for cigars, etc.

This Gothic Windsor chair looks well anywhere and pleases everyone

Equally as satisfactory as the table and fully agreeable to it is the quaint coffee set of crackle ware, pictured on the table. This pottery is enjoying quite a vogue at present, and aside from its looks, the fact that it keeps the coffee hot much longer than does china, makes it the more desirable. It comes in several simple forms and is always effective.

One seldom finds a tea or coffee table of such distinction as this one decorated with pale green


Equally good for hall, living or bedroom use is this oak chest lined with cedar, having drawers of the same fragrant wood

A slender grace adapts this table for porch use, while lightness permits its easy transfer to the lawn

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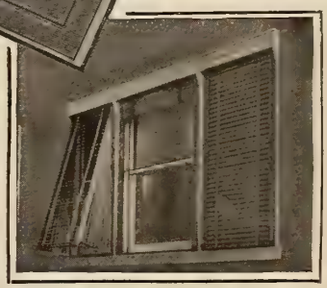

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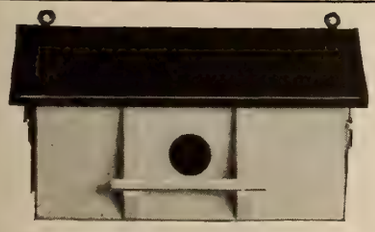

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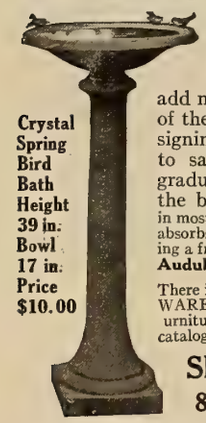
A Sharonware BIRD-BATH



Crystal Spring Bird Bath Height 39 in. Bowl 17 in. Price $10.00

is ornamental in itself and will add new charm to your lawn because of the bird life it will attract. In its designing, particular attention was given to safety and sanitation. The very gradual slope of the bowl safeguards the birds against drowning—a danger in most bird-baths. The semi-porous material absorbs the water every 24 hours thus necessitating a fresh supply. **Endorsed by the National Audubon Society.**

There is an interesting story behind SHARONWARE, the frost-proof, artificial stone for garden urniture. Send for particulars and illustrated catalogue.

Sharonware Workshop
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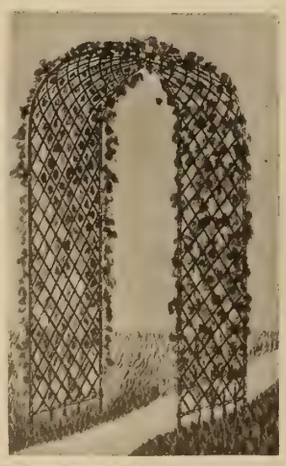
Rose Arches



Seven ft. high and four ft. wide.

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$11.00 each

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Half Arches for Porch Trellis

All sizes and shapes made to order

A. T. BROOK Co.

Maker and Builder Fence, Tennis Courts, Dog and Chicken Runs, Tennis Nets, Posts, etc.

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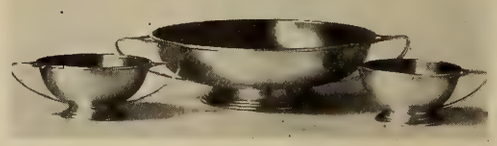
Something New

IT IS always pleasant when going about among the shops to find a new decorative bit for the household, but when one comes across a really useful and familiar article that, by sheer cleverness, has been made decorative as well, it seems worthy of special mention.



Such an one is the painted coat hook of wrought iron shown here. Surmounted by a prettily painted blue bird, this hanger is very attractive and was originally designed for use on a child's costumer, there being four of them on a square oak post, which is also decorated with birds in flight. It costs $1.50.

Apropos of painted decorations, the tin flower and tool basket, pictured here, is very interesting, having natural tinted fruits on a bright blue background, a flat comfortable handle and a smooth finish that recommend it for every day use. With trowel, shears, and twine, it sells at $4.50.

It is a far cry from painted tin to silver, but in this instance distance is easy, for seldom does one find such good looking sheffield plate as the berry set pictured here, where simplicity and grace form a perfect combination. The 12½" bowl and smaller pieces cost $18.

Every housekeeper will be interested in the glass cooking vessels that have but recently been offered to the public, some models of which are illustrated here. These new dishes are very durable, the glass having been perfectly annealed, all edges as well as corners

being rounded, and all surfaces smoothly finished, thereby furthering both cleanliness and service.

Aside from these points, one cannot estimate the great advantage to the cook of being able to see how the food is cooking. Bread will no longer be allowed to burn on the bottom, or puddings be taken from the oven before they are thoroughly baked. And beside, consider the sight—what is prettier than the graded browns of perfectly browned pastry! These utensils come in many forms and are not expensive. J. C. M.

Combination Table-Wagon

A portable service wagon and tea-table; a silent, efficient helper in dining room, parlors, on the porch, in the kitchen.

Useful and Beautiful, Too

Three-inch rubber tired, swivel wheels—noiseless. Folding extension top. Removable Glass Serving Tray. Price, Oak, $12.50; Mahogany, $15.00, delivered free east of the Rockies.

Guaranteed to satisfy.

Free Book *"Kain Unusual Gifts,"* illustrating Tray Wagons, Kain's Trays, and many other beautiful articles made and sold by Mr. Kain. Write for this booklet.

Two articles for porch and table made by Mr. Kain are here illustrated. On left—Flower Vase, 14½ inches high, quartered oak, hoops of solid brass. Price $4.75 delivered. On right, Flower Tub for standard size flower pot. Quartered Oak, $2.75, Mahogany, $3.50. Solid brass hoops.

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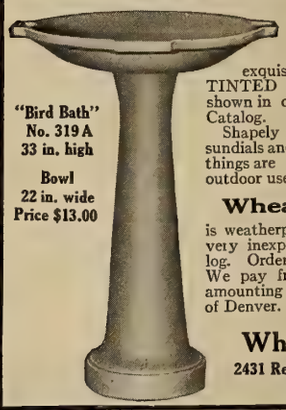

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Bowl 22 in. wide Price $13.00

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Shapely vases and pots, graceful sundials and benches and many other things are included for indoor or outdoor use.

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is weatherproof, tough, hard—and very inexpensive. Send for Catalog. Order direct from the Pottery. We pay freight on all purchases amounting to $5.00 or over East of Denver.

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AN English bench in a secluded corner, a comfortable chair in a picturesque spot, or an old-fashioned settee with chairs and table invitingly set for tea or cards, go far to make the garden what it really should be—a beautiful spot to enjoy—a place of rest and quiet.

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Send for our catalogue. It will aid you in beautifying your garden. See display in New York at The Garden Gateway, 31 East 48th Street.

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$19

HERE is Gardening Equipment — complete, and correct in every detail.

The implements are of finest quality both in design and material, and the basket is made of dark green willow and is leatherette lined.

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The Duplex-ALCAZAR Range will cut your fuel cost by giving you complete a coal or wood range for Winter use and a gas or oil range for Summer needs. No waste of fuel—no waste of space. With this range you have a cool kitchen in Summer, a warm room in Winter and a maximum cooking efficiency all the time. Made in two types, to burn coal, wood and gas, or coal, wood and oil. The transformation from coal or wood to gas or oil, or back again, is made instantly. And—if you so desire, you can burn the fuels in combination as well as singly.

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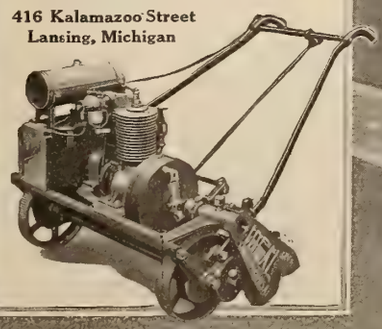

Ideal Junior Power Lawn Mower $225

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Just what you want for an up-to-date movable poultry yard — neat, easy to handle and erect; simply push legs into ground. Strong and durable — last a lifetime — made from 1½" diamond mesh, heavy galvanized wire fabric and galvanized round iron frame with 1" hexagon netting along bottom 12" high — can be moved to other locations at will.

Very handy for young chick or duckling runways or can be used for grown chickens, ducks, geese, etc., and make any size yard you wish.

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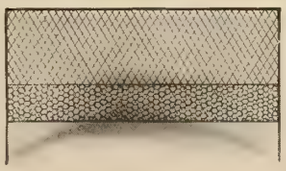

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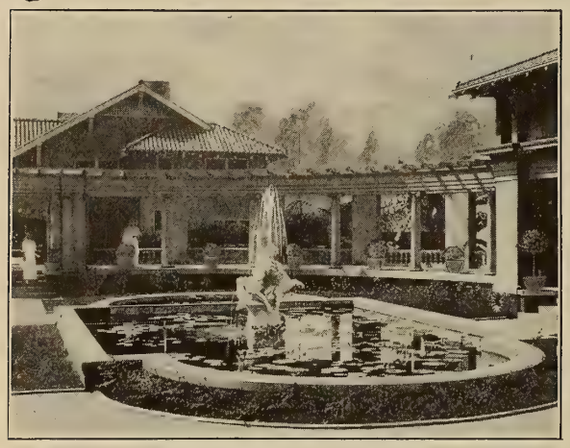

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"Cutting Out" the Squash Borer

THE melon family has many enemies, but the worst of all is the squash borer. It is doubtful whether any garden pest is as bad as this one. Seldom does the squash aphis, common squash bug, the pickle worm, or other of the many insect enemies of the cucurbit family kill every plant, even if the usual remedies for the control of these pests are not taken to protect the growing vines. But an entire garden patch of fine looking winter squash vines may be destroyed by the squash borer.

Against the squash borer, spraying and other usual remedies are of no avail. As the name "borer" implies, the damage to the squash plant is due to a grub which passes the destructive period of its life on the inside of the main leafstalk of the squash vine. Here the borer feeds, unseen and unsuspected, until the vine first suddenly withers and then dies, the immediate cause of the death of the plant remaining unknown to most gardeners.

The simple fact of the matter is that the grub shuts off the sap flow in the main stem of the squash plant by feeding on the internal tissues, thus completely destroying them and preventing the further growth of the vine. The grub is white, about three-fourths of an inch long, with a dark brown head.

The parent of the borer is a moth, one of the most gorgeous of the small moths that fly by day. The description given of it by the entomologist of the North Carolina Experiment Station is as follows:

"The front pair of wings are opaque, olive-brown in color, with metallic green reflections; the hind

If you have planted any Hubbard squash, keep a sharp lookout for the squash borer

wings are clear and transparent, with black veins and a wide bronzy-green fringe of hairs. The hind pair of legs bear a heavy fringe of hairs, those on the outer edge orange or reddish, while the inner fringe is black. The abdomen is conspicuously orange or red, with black or bronze markings."

This description is so precise that one can scarcely fail to recognize the moth when it is seen flitting from vine to vine on a sunshiny day in late spring or early summer. The moth then has a general appearance of purple and orange.

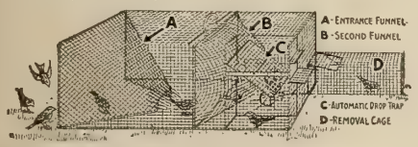
This parent moth of the squash borer lays her eggs on the vine stems near the ground. In the South eggs are laid as early as April or May, but in northern regions as late as July. The moth flies from vine to vine, laying an egg or two here and there, until a whole garden patch has been visited. This is one of the worst habits of the pest: she does not lay all her eggs in one place but scatters them generously over an entire garden. After a few warm days the eggs hatch into small grub-like worms which immediately bore into the vine and begin to eat the inside tissues. They reach maturity in about a month, during which time they feed in the main stem but preferably in the woody tissues near the root. Few plants can survive their presence, since the borers, by destroying the tissues, shut off the sap flow from the roots. Occasionally a plant is able to survive because the borer may feed longitudinally in the stem and only destroy a part of the tissues, thus allowing sufficient sap to flow in the balance of the stem to keep the plant alive until the borer escapes into the ground

Bird Houses at Mr. Stanton's Home, St. Joe, Mich. On left a "home-made" Martin House which stood three years without attracting birds; on right a Dodson Martin House which brought the Martins first week it was up. Bluebird House in center. When you put up *Dodson* Houses you get song birds to live with you.

If You Want Birds Put Up Dodson Bird Houses

Any Jack-Carpenter can make a box and call it a bird house. But he can't win birds with it. For nearly 20 years I have worked for American song birds. I studied and worked for several years to get my first two bird houses just right. There are thousands of genuine Dodson Bird Houses up *and occupied* in America today.

It is not just a house you want; it is song birds. Get Dodson Houses. Send for the free book which tells how to win birds. This book illustrates the 20 styles of Dodson Bird Houses, Shelters, etc., and tells how to win and care for Wrens, Bluebirds, Martins, Flickers, Chickadees, etc.



Dodson Sparrow Trap catching thousands all over U. S. No other trap like this. Double Funnel and automatic drop combined. Price, $6.00.

Nature Neighbors is the best set of books about birds ever published. Free folder and picture of bird in natural colors.

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Mr. Dodson is a Director of the Illinois Audubon Society, the American Audubon Association, Life Member of the Missouri and Michigan Audubon Societies, a Member of the National Audubon Society, the Massachusetts Audubon Society, the American Bird Banding Association, and the American Ornithologists' Union.

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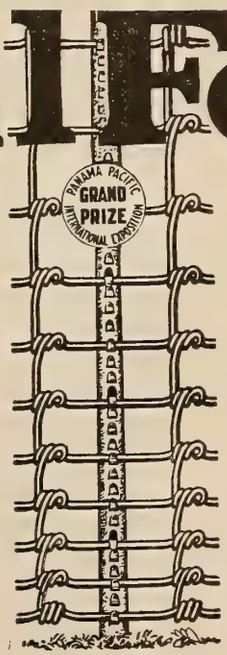

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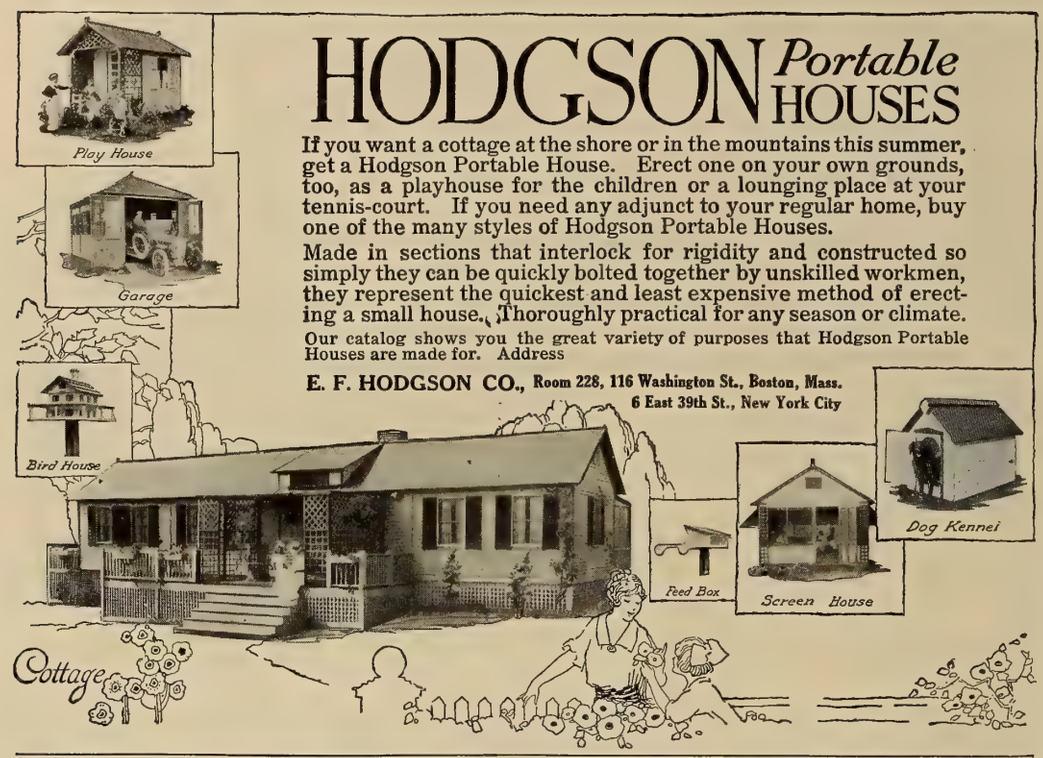

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If you want a cottage at the shore or in the mountains this summer, get a Hodgson Portable House. Erect one on your own grounds, too, as a playhouse for the children or a lounging place at your tennis-court. If you need any adjunct to your regular home, buy one of the many styles of Hodgson Portable Houses.

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Clothes Posts, Fence Posts, Tennis Posts and Flag Poles

Made of high carbon galvanized steel tubing *filled with concrete.* You drop them into the sockets and can remove them in a moment. The heavy steel sockets are separate from the posts. No skill required to drive them.

Save Cost of Digging Holes.

Don't disfigure your lawn with perishable wooden posts when the indestructible, "Re-moveable" cost less.

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Manufactured by
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Send for illustrated Price-List.

Twine Ball Bird House
No. 57—$2.50

This is a desirable house. No question about it, for the Birds selected it themselves. I have added the roof. Get our Catalog and read all about it.

A. P. GREIM, "Birdville" Toms River, N. J.

Practical Real Estate Methods
By Thirty New York Experts
Net $2.00 *Postage 20 cents*
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No. 3. Villa. Double Wren House; fine appearance. Brackets furnished. Pole extra, 6 to 16 feet —6 cents per foot $2.25

Win the Birds to Your Place

All the feathered songsters will make their home with you if you invite them with several of our unique houses, shelters and baths.

Various birds have different tastes in houses. We have styles that will suit the birds and you and add quaint charm to your grounds.

"The Garden Unique" shows many original designs

Write for copy today. You can have a number of bird families on your place if you order at once. They'll delight you by their song, and clear your garden of insects. Send check or money order today.

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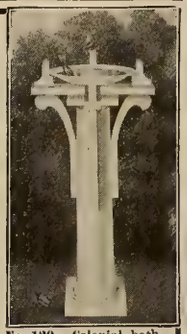

No. 120. Colonial bath Pedestal 46 in. high. Price only $7.50

when fully developed. This takes place in about a month. The borer forms a cocoon in the ground, changes into the pupal stage, and finally in a few weeks emerges as a parent moth to continue its destructive work with any late planted squashes.

The borer is especially partial to the Hubbard squash though it will attack any winter variety. In all parts of the country, the Hubbard squash has become a difficult crop to raise. I have tried many plans, including clean cultural methods, killing the moths when discovered laying their eggs, spraying with arsenical poisons, destruction of the vines after the squashes have been harvested, the construction of frames of laths covered with mosquito netting to protect the growing plants, late planting, and by cutting the plants open and removing the borers. Of all the plans tried, the last has given the most satisfactory results; in fact I have always been able to secure a crop.

The presence of borers is generally indicated by a drooping of the leaves. When this symptom appears, closer examination of the stalks near the roots will generally reveal a slight discoloration and the presence of some brownish matter which is forced out by the borers during the process of feeding on the inside of the stalk. I locate the situation of the borers from the signs as closely as possible and then, with a sharp knife, I slit the main stalk open to a length of from four to eight inches, spread the stalk open with the thumb and forefinger, and remove the borers with the point of the knife. After the borers are removed and killed, I bring the cut edges of the stalk together again, wrap the cut part with a strip of old linen cloth, and cover the stalk with soil up to the limit of the wound. A good sprinkling of water is then given the plant to help it recover from the shock. Late afternoon and evening is the best time for doing this work, since the plant has the whole night in which to recuperate.

SOME RESULTS

The nature of the season, of course, has something to do with the number of squashes which mature. The season of 1911 gave a yield of 589 pounds from a plot 35 x 125 ft.; but the season of 1912 was somewhat less than this yield. This was due to the fact that the seed was planted a little later than usual and the young squashes were many of them attacked by the pickle worm, another pest of our Middle States. The highest yield secured under this system was 697 pounds on the same piece of ground. There was a total of 72 marketable Hubbards with an average weight of 8¼ pounds. The largest squash weighed 18¾ pounds. At regular market prices, such a yield is equivalent to a value of about $175 per acre.

Maryland. James B. Morman.

Getting Smooth Turnips

While farming in the State of Maine several years ago, I specialized in growing early garden vegetables for a nearby market. My turnips, however, did not satisfy my customers and I was thoroughly disgusted with their poor quality. They were covered with prongs and were fibrous and woody.

One spring we employed a Scotch gardener. Early in the spring he staked out one-fourth acre of grass land, and gave it a good coating of strawy horse manure. On June 10th the ground was plowed. By this time the grass and weeds were nearly one foot high. A chain was attached to the spreader and plow, and the grass and weeds were dragged under the surface of the soil. We then rolled the ground with a heavy roller, after which we put on about one half inch of fine manure. This manure was full of weed seeds and in five days the weeds appeared in such quantity that the whole field looked green.

The gardener wanted to rake the ground and thus kill the weeds, but at my suggestion a horse and brush were used; five days later this brushing was repeated and most of the weeds were killed. The turnip seed was planted on June 23rd, four or five weeks later than the usual time. The seed germinated immediately. When the turnips were harvested they were as smooth as apples and sold in the market for one dollar a bushel, while my neighbors' were selling for only fifty cents.

Massachusetts. M. A. Walton.

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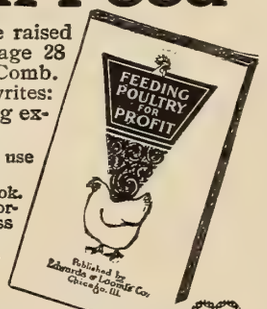

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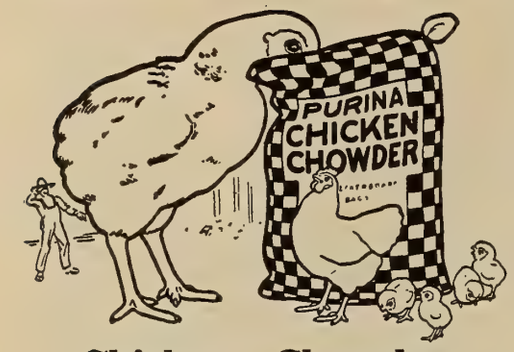

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FLOWER AND VEGETABLE PLANTS. Pansies, the Big Giant Flowering Kind; strong seedlings $3.00 per 1000, in bud $5.00 per 1000, large plants in bloom $15.00 per 1000.

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THE GARDEN MAGAZINE

FOR MAY

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LEADING FEATURES

DAHLIAS *AND* GLADIOLUS

There will be a rich collection of material about these most popular summer flowers. These two gorgeous garden favorites may be grown by any one — anywhere, and are arousing more real interest among enthusiastic gardeners now than any other bulbs or roots.

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The New Department

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This season everyone is planting and rightly so—"AMERICA" Be sure that your garden is not an exception.

Four varieties which occur in practically all the lists of best ten Gladioli are:

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THE COUNTRY LIFE PRESS, GARDEN CITY, NEW YORK

MAY, 1916

THE GARDEN MAGAZINE

15 CENTS

DAHLIAS GLADIOLUS

DOUBLEDAY, PAGE & CO., GARDEN CITY, N. Y.

Some Happy Thought Garden Thoughts

THERE'S a delightful zest in trying new things; or better yet trying old things in a new way. Just now the members of the gardening clubs are hob-nobbing about rock gardens.

From the way we are being sought and besought for information about how to construct them; and the plants to plant in them, it's evident that rock gardens are gleefully coming into their own. But quite the happiest thing of all is the celebrating of Shakespeare's tercentenary by having a garden of Shakespeare's flowers; even to rosemary, wild thyme and cuckoo buds.

50 Rock Garden Plants

SO why not have a rock garden, along with your Shakespeare garden We will tell you an easy, simple way to make one; or if you prefer, will gladly do it from start to finish for you. From April to Thanksgiving Day, it will be in bloom.

We have over 340 varieties of plants, shrubs and dwarf evergreens, especially grown for rock garden planting. From the 340, we have made a collection of what we consider the best 50. We will give you a price on the 50, or you can select from it, any number of any you fancy. Send for the list and price.

32 Flowers for Shakespeare's Garden

OF the 64 flowers that have been immortalized in Shakespeare's poems, you will be glad to know that you can at once secure 32 from us. The very same flowers that brightened the rural ways of Warwickshire when Shakespeare sang of them so lovingly. Here is our list:

Aconite or Monk's Hood	Hyssop
Balm (sweet)	Iris (blue)
Camomile	Larks' Heels or Delphinium
Columbine	Lavender
Cowslip	Lily (Madonna)
Crow-flowers, "Ragged Robin"	Mallow
Cuckoo-buds, "Buttercup"	Marjoram
Daisies, "Pink and white"	Pansy
Eringoes, "Sea Holly"	Pinks
Fennel	Peony
Flax	Poppy
Flower de Leuce	Primrose
Hawthorn	Roses (cultivated)
Honeysuckle	Rosemary
	Rue
	Thyme
	Violets
	Wormwood

Select the quantities of each you want and we will send you the prices. For 25 plants, 5 of any 5 kinds, we will make you a special price.

Surely no old-timey flower garden could possibly be complete without Larkspur or Larks' Heels, as it was called in Shakespeare's day. The choicest of all is the King. Immense rich blue flowers. Clumps 50 cents each. $5 a dozen.

Send for complete catalog of flowers, shrubs and trees

60 Poke Bonnet Flowers

NO more happy thing has happened for flower lovers in many a day than that the old fashioned flowers are now decidedly new fashioned. Hollyhocks to peep over the garden gate; Foxgloves, exquisite in color and regal in air; Larkspur, kissed with heaven's own blue; Phlox in riots of color; dependable, always likable. Golden Columbine in pendulous blooms of gold; and so on through all those fine old flower friends of our grandmothers.

Surely you want a new fashioned garden of old fashioned flowers. For so little as $7.50, we will send you our "Poke Bonnet Collection" of 60 plants; 5 each of 12 varieties.

Order early. Plant early. Get early results.

10 Evergreens for Foundations

ASK any good old gardener the best things to plant around your foundations, or in the stoop corners; and he will nine times out of ten say: "Well for all-year-round effects there's nothing like evergreens, with their different foliage formations and diversity of greens." For $25 we will send you a collection of 10 trees, 2 each of 5 kinds. Our evergreen expert selected 5 of the low ones for the front and 5 of the taller growing kind for the back. Fine trees, all of them. Full rooted and shipped with burlapped ball.

Julius Roehrs Co

Box 10 Rutherford N.J.

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Add Beauty to the Garden

Some of Our Specialties:

	Per Dozen
Canterbury Bells	$1.50
Hollyhocks	2.00
Larkspurs	2.00
Phloxes	1.75

Our collection of Hardy Perennial Plants is one of the most complete in the country.

Our 1916 Garden Annual containing full list of varieties will be mailed on request.

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9 South Market Street BOSTON, MASS.

New Decorative Dahlia For 1916

Mt. Shasta, No. 268

Light pink. Petals long and slim and sharply rolled at points. An extra fine full deep flower and enormous size. This flower when grown to perfection is simply a wonder in color, shape and size.

Plants only. Price $5.00

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Because of the popularity of my special collections offered for sale each year at the New York Flower Show, I have made up a supply and now offer them to the readers of THE GARDEN MAGAZINE at the same price as they were sold at the Show.

Collection containing 1 dozen bulbs, $1; 1 dozen bulbs (popular varieties), $2; 1 dozen newer varieties, $5.

Postage of any of these collections, 25c

Write for my Catalogue if you are interested in Dahlias

George L. Stillman, Dahlia Specialist, Box A-6, Westerly, R. I.

EXCLUSIVELY

Gladioli

Sixty acres devoted entirely to these Gladdest Flowers of the Garden. 2,500,000 bulbs in my storage as the season opened. A single field of 70,000 "Americas" to meet the demand. 14 years of study and devoted attention, a determination to excel in quality and to make Gladioli the most widely known and truly appreciated flower of the garden is my claim for patronage. Let me urge you to plant Gladioli this spring, particularly:

DAWN One of the most glorious pinks ever produced, magnificently formed flowers on large graceful spikes. Surpassing keeping qualities as a cut flower. $2 per dozen, $15 per hundred.

ROUGE TORCH Large creamy white flowers with a rouge torch-like tongue on inferior petals making a strikingly showy effect. A truly marvelous flower. $5 a dozen, $40 per hundred.

AMERICA Special. A beautiful dainty pink, immense waxy-like flowers, borne on strong spikes. Should be in every garden this summer particularly for its name as well as its great beauty.

MY GIFT BOX 25 selected bulbs, ideal for a present, postpaid, with your card to any address, $1.

Let me send you my illustrated booklet on Gladioli, listing 125 varieties, interesting special offers and collections free.

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Use Alphano—in Your Garden—on Your Lawn

ALPHANO is an absolutely dependable plant food and soil builder.

Its effects are immediate. Its results are lasting.

It is rich in all the vital plant foods, and liberally inoculated with all the essential nitrogen producing legume bacteria.

It is delivered to you in a dry, finely pulverized, odorless condition.

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Our responsibility is a guarantee that it will and must make good.

Protect yourself; look for the name Alphano on bag or tag.

Send for the Alphano Book. It's a short cut guide to every one of your soil enriching problems.

If celery like this can be grown on heavy, unproductive clay soil, treated with Alphano, you need have no doubts what it will do for your soil, even if loose sand.

5 BAGS for $5

$12 a ton in bags

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$8 a ton in bulk by carload

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Best flowering bulbs, all colors mixed—Many new and finest.

Also 10 choice named Gladioli for 25c. Some of the handsomest new and rare sorts known.

Both lots, 30 bulbs for **40c.,** or for $1.00 we will send 100 mixed and the 10 named.

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WE offer and fully describe in our Garden Book this season four hundred and forty-seven of the choicest New and Standard varieties, which include all types and colors of this favorite Fall flower, every one having been carefully tested and found desirable. If you have never grown Dahlias you should begin by getting a free copy of

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Ordway's Golden

which is early, tender, juicy and surpassingly sweet—the four leading qualities of the ideal corn. ¶ Carefully selected seed sent by return mail on receipt of price. **Per quart, 60c; pint, 35c; half-pint, 20c; trial packet, 10c and 15c each for the medium-sized ears.**

O. P. ORDWAY

SAXONVILLE, MASS.

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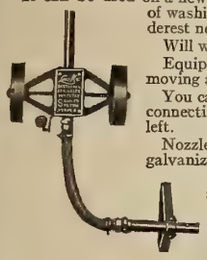
There is a right and wrong way to water grass. This Lawn Mist is one of the right ways. Of first importance, it waters *uniformly* and waters *thoroughly*. So fine is the spray, that the ground absorbs it as fast as it falls, causing it to sink deep down into the soil; consequently inducing the much sought for deep root development.

It can be used on a newly made lawn without danger of washing out seeds or injuring tenderest new growth.



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Ideal refrigeration requires one hundred per cent perfection in FOUR POINTS:
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Cleanliness is assured by the "Monroe's" solid one-piece porcelain food compartments—all corners rounded. No metal to corrode. No enamel to chip. Not a single crack, crevice or corner to harbor dirt or germs. Easy to clean and keep clean. Circulation of cold dry air is secured by features scientifically installed.

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145 Benson St., Lockland, Ohio

FREE
Catalog of Dutch Bulbs at war time prices

Send for your copy to-day

Don't plan your garden—don't buy a single thing until you have seen this catalog!

Mail the coupon below or send a postal. Look over the catalog—page after page of imported bulbs—the very flowers you want, at prices lower than you have ever before been able to obtain. Learn how you can have, this season, the very garden you have always wanted!

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Heretofore, Holland Bulbs have been eagerly bought up in European markets. This year, the market for bulbs in Europe is materially curtailed. The demand is 50% less, and the Dutch growers are looking to the American market to take their bulbs. The prices have naturally dropped lower than heretofore.

For years we have ordered bulbs from the Dutch growers. We visit Holland frequently and know them personally. Our connections with them are so close that it is possible for us to get even lower prices than you can secure elsewhere.

In our catalog, we explain how we have arranged with them so that the bulbs are packed by them and forwarded to you as soon as they reach this country. This means that bulbs ordered from this catalog now cost you about half what the same high grade bulbs would cost if bought through the ordinary middleman.

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Our connections abroad make it possible for us to buy bulbs from the best specialist of that variety. Every bulb shown in the catalog you get direct from growers who have made a life study of the flowers they grow; thus you are assured bulbs of the first quality.

Special prices good only until July 1—Order now—pay when delivered

To take advantage of the very low prices offered in this catalog, we must have your order **not later than July 1st,** as we import bulbs to order only. They need not be paid for until after delivery, nor taken if not of a satisfactory quality.

References required from new customers.

Send for our Special Order catalog. Make your plans now. See how little it will cost to have just the garden you have always wanted.

Don't delay—order now while "war time prices" prevail. Fill out the coupon for the catalog now! Mail it today.

Elliott Nursery Co.
367 Fourth Ave. Pittsburg, Pa.

Special Offers Which this Book Contains

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Fine Mixed Hyacinths	$2.90	$14.00
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Extra fine Mixed Single Tulips	1.00	4.50
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Double Daffodils	1.90	8.75
Narcissus Empress (Monsters)	3.00	13.50
Narcissus Empress (Large selected)	2.35	10.50
Narcissus Emperor (Monsters)	3.00	13.50
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Finest he ever saw! "I have received my order of gladiolus, and they are the finest I ever saw. The tulips and peonies that I bought last fall have grown splendidly."—*H. T. F., Bangor, Me.*

Always perfect! "Your splendid bulbs arrived. Enclosed find twenty-five dollars. As always, the stock you sent is perfect."—*A. G. W., Galesburg, Ills.*

More than delighted! "The bulbs I ordered from you are now in bloom in all their glory. I am more than delighted with them, and shall send another order."—*M. J. B., Clinton, Ills.*

Admiration of the town! "I want to tell you how magnificent my daffodils are. They are the admiration of the town, and have given us untold pleasure. Each daffodil is the size of a tea cup. Many bulbs have four flowers, and not one has failed to produce two."—*G. D. S., Uniontown, Ala.*

Surpasses tulip beds in city parks. "I have a bed of tulips from bulbs purchased from you. It surpasses any thing I have seen in the city parks."—*J. A. D., Cordell, Okla.*

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It is an ingenious, scientific method of combining in one operation the several others formerly attendant upon Fertilizers and Insecticides for Lawns, Gardens, Shrubbery and Foliage.

It is the only clean, odorless, positively active, easily handled, practicable, economical and efficient method of destroying Insects or Fertilizing, requiring no additional labor or experience.

It abolishes the use of unsanitary stable manure, so objectionable, because of its disagreeable odors and the great abundance of weed-seeds it contains.

It abolishes the use of cumbersome hand-pumps, hand sprayers, carts and wagons, etc., for distributing Insecticides and Fertilizers.

It is without an experimental feature — it will work as well for you as for the thousands all over the country who already enjoy its benefits.

"*Kirke* System"—Once Used Always Used

PRICES	Each	½Doz.	Doz.
Kirke Cartridge Container	$3.00		
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Kirke Tobacco Insecticide	.30	1.60	3.00
Kirke Hot-House Special	.50	2.75	5.00
Kirke Arsenate of Lead	.40	2.30	4.50
Kirke Bordeaux Cartridges	.30	1.60	3.00
Kirke Angle Worm Destroyer	1.50		
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Especially Useful for Piazza Plants, House Plants, Cemetery Plots and Small Gardens

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Growing Cauliflower in a Young Orchard

CAULIFLOWER is usually raised as a garden vegetable, and is considered somewhat difficult of cultivation. It is very hardy, will bear considerable frost, and comes to its greatest perfection late in the season — in fact, it matures better in cold weather than in warm. In this latitude, where heavy frosts may be expected in late November, the seed should be planted about the last of May. An ounce of seed, costing about $1.75 at wholesale, should give about 3,000 plants. A packet of 200 seeds may be bought for twenty-five cents. We have tried it as a field crop in a young pear orchard, on a farm in the Hudson River Valley some fifty miles north of New York, and found it to be a profitable crop. Three rules might be followed for success: fertilize heavily, cultivate continually, sell in local markets.

We planted seeds of the Snowball variety on May 31st in fairly rich soil. The ground between the rows was kept loose and free from weeds by frequent hoeings. On July 15th the plants measured eighteen inches high by about twelve wide, as they stood in the row. They were then ready for transplanting to the orchard.

The soil there was a clay loam, from which a heavy crop of potatoes had been taken the year before. To renew the vitality of the soil oats had been planted on April 26th. On the 21st of June they were about eighteen inches high and were plowed under; the lot was then harrowed with a disc wheel cutaway harrow, twice the length of the lot and once across.

When setting plants in large numbers I always use a planting machine. One man can operate it and carry a basket of plants slung across his shoulder; though, where it is desirable to save time, two persons should work, one to carry the plants and drop them down the tube of the planter, and the other to operate the planter. By this method the plants can be set as fast as the men can walk. In mellow ground, the weight of the instrument loaded with liquid fertilizer makes holes sufficiently large for the plants.

A small number of the plants were taken at a time from the garden row with a trowel and carefully separated. Each plant was trimmed, the tops bunched together, cut off with a pair of grass shears to within an inch and a half of the crown, and the lower leaves removed. This trimming reduced the plant to a proper size to fit the three inch drop tube of the planter and also served to force the sap into the heart leaves of the plant.

The liquid fertilizer is a saturated solution of any strong commercial fertilizer, and the tank in the machine will hold enough for about 100 plants. The jaws of the planter have flanges on the side so arranged that by twisting the machine they scrape the soil from the sides of the hole over the roots of the plant. This, with the liquid fertilizer, which is released by a slight pressure of the thumb on the horizontal bar of the planter, forms a clot of mud around the roots, which goes far toward aiding their recovery. We set the plants one good pace apart, in rows three and a half feet apart. A taut line of garden cord stretched across the field keeps the rows straight.

Two weeks after setting, on July 29th, the ground had dried out to form a crust, so the whole field was gone over with a one-horse cultivator and a week later the plants received a thorough hoeing. This cultivation was repeated after every rain, it being

important to keep the earth loose around the plants so long as they are small enough to permit of cultivation.

On August 20th, a handful of dry commercial fertilizer was thrown around each plant. This, with the task of cultivation, was all the attention that the plants required during the summer. By early fall the plants covered the ground to such an extent that cultivation without injuring the plants was an impossibility.

To secure the hard white "flower" which the market demands, the "button" which forms in the centre of each plant about the last week in September must be protected from the discoloring action of the sun. The simplest method of doing this is to bring the leaves, which surround the plant, up over the top and there tie them together with string, raffia or rubber bands. This last is to be preferred because of the saving of time. We go over the field at intervals of about a week or ten days, depending on the weather, the plants developing more quickly in warm, sunny weather than in cold, cloudy weather.

About the first week in October the "flowers" begin to attain size, and when they reach five inches or more across they are ready for market. In the first week of October my patch is usually cut over for the first time and all the vegetables which have attained sufficient size are cut, leaving the roots in the ground. The leaves are cut off level with the flower, forming a circle of stems around the blossom. A square of white paper is then laid over the flower and the sides and corners tucked down among the stems, which hold it in place.

In marketing a crop the more middlemen that can be eliminated the larger the returns. We were fortunate in having two local markets, beside New York City. One of these local markets was a settlement; the buyer being in the employ of the settlement, there was no commission to pay. The other local market was the village of Cornwall three miles away, where we made our own deliveries with horse and wagon. Goods were also sold to applicants at the farm.

The cost of seed, fertilizer, etc., was $53.36, and our receipts from the sale of seeds, young plants, and cauliflower were $96.98. This left us a clear profit of $43.62, which was most encouraging.

New York. SHERBURNE M. SHAW.

Success with Cauliflower

CAULIFLOWER is more exacting than its near relative, cabbage. It must have a somewhat richer soil and cool, moist weather agrees with it better than hot and dry. Planting should be made to head either before or after the hot summer months.

Start the plants in a hotbed in March for the early crop or buy the plants from the seedmen and sow seeds in May or June for plants to set for the late crop. When the plants for the first crop are about three weeks old, transplant into a box, putting them about three inches apart each way. They may then be gradually hardened off by outdoor exposure and transplanted to the open ground as soon as danger of frost is past, though they will stand a light frost. Set the plants in the garden two feet apart each way.

The soil should be deep and rich with a plentiful supply of humus, and there is needed an abundant and continuous supply of moisture. Breaking up the soil deeply and giving frequent cultivation to retain moisture as it falls will provide for this latter requirement in most seasons. But during those times when the soil is dry frequent watering should be given.

For the fall crop sow the seeds in a seedbed the last of May and when the plants attain a good size set them out in the garden as directed. If the soil is dry at the time of transplanting, the plants should be watered until well started.

As soon as the heads of cauliflower commence to form they should be protected from the sun by drawing the large outside leaves together loosely and tieing them over the heads. The heads soon become sunburned if this is not done, but when protected by the leaves they are white. Cut when the heads are compact and hard; if left in the garden until they open and separate into branches much of the fine flavor is lost.

Indiana. W. F. PERDUE.

IF you have, in the hustle and bustle of Spring's activities, put off ordering from day to day, just those things you had planned and dreamed about during the winter evenings; then you will right now welcome our ever ready helps and quick delivery service.

Of course, the planting season is now more than half gone, but don't let that flag you. Get that catalog of ours out at once, and line up your order. When you get right down to it, you will be surprised how soon the ordering really can be done.

Don't let Summer come and no old-fashioned garden—none of the shrubs you have wanted—none of the evergreens you need—none of the shade trees you have so wished for.

If you haven't our catalog right at hand and don't want to wait to send for one; here are a few memory jogger offers, fullest details of which were given in our April advertisement in this very magazine. Better look that Ad. up.

Happy Home Collection

No. 1—5 Items for $35

2 Norway Maples, 12 to 14 feet high.
1 American Linden, 10 feet high.
Ample plants for 100 feet of privet hedge.
50 Assorted shrubs.
5 vines for porch

No. 2—10 Items for $60

3 Norway Maples, 12 to 14 feet high.
Enough Japanese Barberry for 100 feet of hedge.
2 Pines 5 feet high.
50 assorted shrubs for foundation and stoop planting.
20 tall shrubs for boundary planting.
1 Linden Tree, 8 feet high.
5 Lombardy Poplars for screen.
25 Hardy Flowers, 5 each of 5 kinds.
5 Clematis vines.
5 Lilac bushes.

Cheerful Monday Screen

To screen your or your neighbor's flapping wash from view, for quick results, we suggest Lombardy Poplars. Splendid specimens, 8 to 10 feet, 5 for $4. 10 for $7.

For all year round screen, Arbor Vitae is the thing. 10 trees, 6 feet high, cost $25.

Snug-up Porch Planting

10 Shrubs for $4

These 10 will plant a triple row, space 8 to 10 feet long. 20 cost $7. 30 for $9. Assortment contains only the most desirable varieties.

Trowel and Sunbonnet Collection

40 Plants for $5

These are the delightful, old-timey hardy flowers associated so lovingly with days gone by.

4 each of 10 kinds.
Or 100 plants for $10.
10 Plants of 10 kinds.

IMPORTANT

State whether you want goods shipped by freight or express. If you want our Helping Hand Planting Helps for solving your particular problems, send us a rough sketch of your grounds, showing boundaries and location of your buildings. But step lively—that's the point of importance just now.

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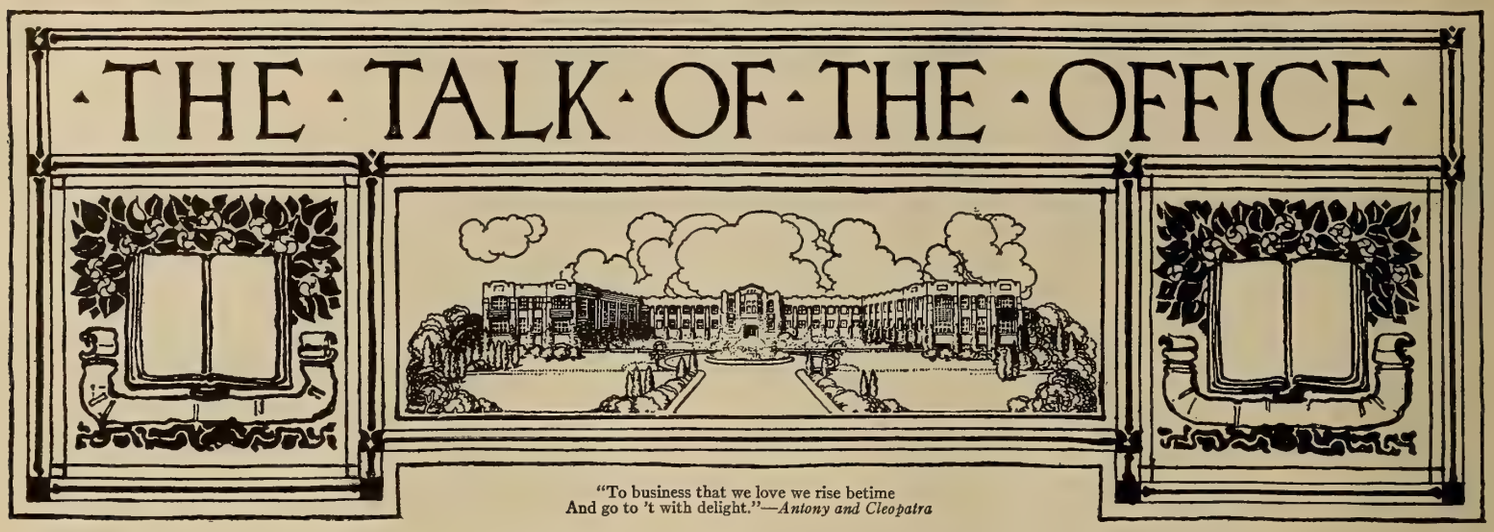

"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

FOR READING ALOUD

IT IS not often that a book of timely interest can come before the public a second time, long after the events which made it up-to-the-minute have passed, but such is the case with the latest novel of A. M. and C. N. Williamson, whose popular romances of travel have entertained so many people. The book we refer to is "Secret History, as Revealed by Lady Peggy O'Malley," which was partly laid in El Paso during the Mexican troubles of several years ago. One of the features of the story was the discovery of the plot of certain Mexican trouble makers to raid the Texas border city. Strangely enough, the events of last March on the Mexican border are rather a close parallel to the situation woven into the Williamsons' novel.

"Secret History" is a book which we can unhesitatingly recommend to our good friends as one to be read aloud, for it is light, clean, sprightly, interesting—and, besides, it is more timely than it was when it was published a year ago. It has many little touches and asides to please the listener, and will not drive him to sleep in an effort to think over it.

We publish here an interesting picture of a gentleman who was so absorbed in the fortunes of little Lady Peggy that he could not put the book down even as he walked into the sea for his bath. He almost lost the volume in the waves before he awoke to his situation.

It is a pleasure to be able to announce a new book by Mr. and Mrs. Williamson which will be published next month, and which we predict will be enjoyed by all lovers of a sprightly romance, by motorists, and especially by the thousands who read their earlier motor novel, "The Lightning Conductor." This book was one of the most popular of the Williamsons' early stories and in bringing their "Lightning Conductor" to America we believe they have achieved an equally interesting and instructive book.

Mrs. Williamson last summer spent several months in this country gathering the material for this book. She took a motor trip over several of the eastern states studying the historical associations of all places of interest and letting the beauty of the varied scenery sink in. In writing the story, which is told in the form of letters, Molly and Jack of the earlier "Lightning Conductor" appear, but this time not as hero and heroine, as in the course of years they have become a mature married couple, deeply interested in the affairs of some younger people we hope you will meet and like in the new book.

He was so interested in the Williamsons' new book, "Secret History," that he walked into the sea at Nassau, Bahamas, before he knew it.

A BOOK ON THE RUSSIAN CAMPAIGN

Although very few war books have come from the Country Life Press, we feel that in Mr. Stanley Washburn's "Victory in Defeat" we have just published an important addition to the literature on the great war, and a book which will perhaps have definite historical value as time goes on for the first-hand picture it gives of the great sweeping campaigns of the Russian armies in Galicia and Poland.

Mr. Washburn is an American war correspondent of wide experience who spent from October, 1914, to November, 1915, at the front with the Slavic forces as correspondent for the London *Times*. Last March he returned to Russia to follow the spring and summer campaign.

During his thirteen months with the Russian forces Mr. Washburn enjoyed unusual advantages for observation as he was with every active army but one, covered some 10,000 miles of territory from the Bukowina to the Baltic, saw many of the important battles and was the only American (with the exception of the American Military Attaché Lieut. Sherman Miles and Robert R. McCormick) to have any general access to the fighting lines. He discusses in illuminating manner the Russian leaders, the *morale* of the Russian troops, the Russian shortage of ammunition, and points out how far from any possible consummation was the German hope of effecting a separate peace with the Czar.

The author's experiences in Russia include a luncheon with the Czar, at the Imperial Field Headquarters, where he was decorated with the Order of St. Anne.

Mr. Washburn is a young man and fulfills in every way the popular idea of what a war correspondent should be. He "covered" the Russo-Japanese war for the Chicago *Daily News*, operating the dispatch boat *Fawan* outside Port Arthur, later serving with General Nogi's army. He was decorated with the Order of the Imperial Crown. Later, recuperating from a nervous collapse in Pekin, he received a cable message from his paper saying: "Proceed Russia direct how soon can you start."

"Start 9 morning," was his reply, and against the orders of his physicians he started for Constantinople. Russia was in the throes of the Revolution of 1906 and his object was to reach there as soon as possible. At Constantinople he chartered a small steel steamer and against the advice of all seafaring men in the Turkish capital started for Odessa. They were nearly wrecked in the Black Sea several times in the fierce winter gales, were the first ship to enter the port of Batuum on the Black Sea flying an American flag, and scored a beat on the newspapers of the world on the progress of the Revolution in Odessa.

Besides these thrilling experiences Mr. Washburn has headed several exploring parties into Northwestern British Columbia where he has located many important water power sites.

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Delphinium Belladonna, **Eremuri, Phlox, Peonies, Montbretias, Lilies.**

We have splendid plants in pots or from the open of **Juniperus** procumbens, **Juniperus** communis, and **Juniperus** Koriensis, three beautiful hardy evergreens for ornamental ground covering.

A large variety of plants for Rock and Wall Gardening

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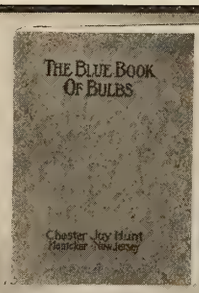

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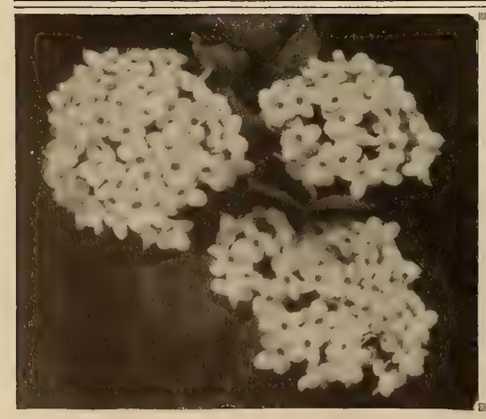

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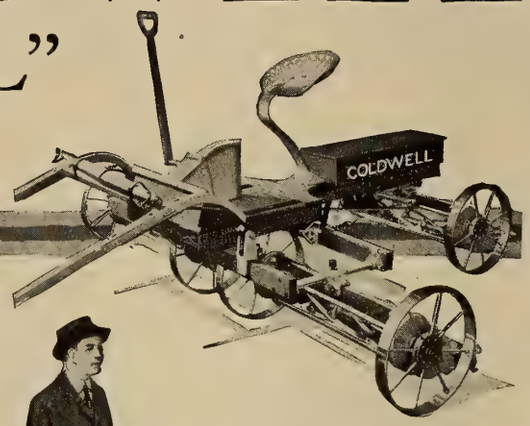

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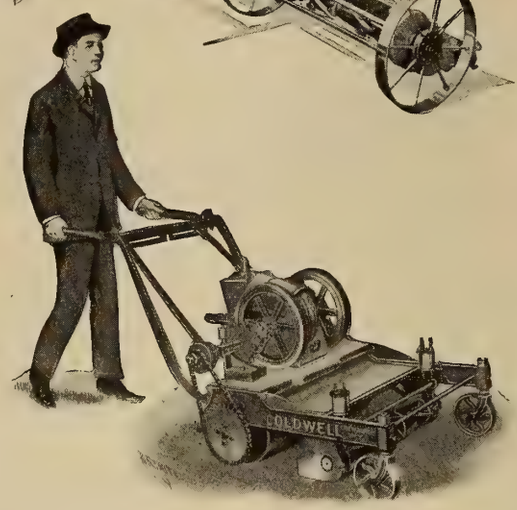

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The Garden Magazine

VOLUME XXIII MAY, 1916 NUMBER 4

EVERY good gardener—and every sincere garden lover whether or not "good" in the sense of being successful —is at heart an investigator, something of a scientist. This is, perhaps, partly because he or she deals directly and at first hand with Nature; for Nature's garden is one great laboratory. But it results also from the opportunity that is offered to change and modify the conditions under which the development of the garden and its inhabitants take place. An extra hour's digging or raking, an added handful of commercial fertilizer, the doubling or halving of the water supply, the judicious choice of a particular variety—each of these actions, simple in itself, may bring about striking variation in the ultimate results.

Then, too, there is the tremendous influence of seed selection, a science in itself, of course, and in its highest development, far beyond the reach of the amateur vegetable or flower grower. For it requires the careful study of types, scientific uniformity of treatment, continuous detailed scrutiny and the maturing of every plant, all of which inevitably clash with the primary purpose of the backyard or frontyard garden. And yet every person who buys a packet of seed can profitably practice this selection in its simplest form—by merely separating out and planting only the largest of the seeds. This means discarding all the shriveled, undersized, cracked or chipped ones; and it means, of course, a little heavier expense. But it means also results—and is that not what we garden makers are after?

Professor Cummings, of the Vermont Experiment Station, has made careful tests to ascertain the truth of just this theory, and reports that the use of large, heavy seed gave, in the case of Sweet Peas, "earlier blossoming, a larger total number of blossoms, and a larger number of blossoms of good quality"; also, "plants grown from large seed are heavier and bear more and longer lateral branches"; in the case of lettuce, "larger seedlings, and increased weight of edibly matured plants, in short, augmented earliness and quality"; in the case of spinach, "heavier plants, more and larger leaves, stalks and general earlier yield"; and in the case of parsley, "larger and earlier foliage; and greater recuperative powers" when cut back.

THE article on peas, which Mr. Kruhm contributed to the April GARDEN MAGAZINE, deserves to be studied with much care by the reader who really appreciates quality in that most delicate of vegetables. It is not so much on account of the particular recommendations, since they, like all individual judgments, are likely to be modified by individual prejudices or preferences. It is because of what Mr. Kruhm tells concerning the nature of the pea itself and its proneness to variation and change, that the article merits peculiar attention. In peas, especially, the point of view is of importance. A seedsman may have a totally different attitude from that of a majority of his customers among home gardeners. Strains of peas, from the seed growers' standpoint, are considered good, indifferent or bad, as the case may be, according to the uniformity in height of plant, number of pods to the vine, uniformity in shape of pods and number plus quality of peas to the pod. The factor which most interests home gardeners (i. e., quality) ranks last when it comes to judging peas from a commercial standpoint. During the last few years the growing of seed peas in this country has undergone a revolution, concerning which Mr. Kruhm writes:

"I would like to 'break a lance' for the American seed trade as a whole. About eight or ten years ago the necessity confronted the growers of moving to virgin territory and new fields, since the weevils were too great a nuisance in Eastern sections. The region just west of the Yellowstone Park, on both sides of the Bitter Root Mountain range in both Montana and Idaho, was found to be the American paradise for peas. Almost over night, the country around there became the centre of the American seed pea industry.

"Here was a new country, with new men, most of whom were practically 'green' hands in the business of seed production. They coöperate with Nature to the best of their ability and make the ground yield bountiful crops. But the ideals as to 'what is what' among peas, which it took decades to instill into the minds of the old pea growers in the East, could not be transferred to the new growers in a hurry and, as a result, our best strains of peas are less uniform to-day than they were eight or ten years ago.

"No one in particular is to blame for that. Thousands of dollars are expended by all conscientious seedsmen every year for 'rogueing' the fields, i. e., pulling out tall vines from among dwarf sorts, and vice versa. But it takes a long time to 'fix' ideals in the minds of men, and unless ideals are fixed, strains of peas cannot become firmly fixed.

"So, if you find a tall vine once in a while among your dwarf peas or a smaller vine with smaller pods among your tall, late sorts, don't 'kick,' but be satisfied that your seedsman is doing his duty every day and that you are getting seed peas that will produce thriftier vines with more pods of larger size containing grains of better quality than you ever got before."

AMONG the types of farming suggested as "sure and easy money makers" for inexperienced back-to-the-landers, broken down clerks, distressed widows and such potential buyers of abandoned farms and other country property, the raising of drug plants has come in for a generous share of attention. But the public conscience is awakening to the right of people to know all the truth in such matters, whether pleasant or otherwise, and in response, the Department of Agriculture has recently issued a bulletin dealing with the advantages and drawbacks of these crops.

Apparently the latter are in the majority, at least as far as the average, general farmer is concerned. The real opportunities await experienced and well equipped specialists who can make a study, not only of the details of production, but also of the demands and tendencies of the decidedly limited market. In other words it is becoming increasingly necessary to practice modern manufacturing methods in raising and improving the raw material, in manufacturing and refining the finished product, and in handling the commercial end of the business—little of which can be accomplished by the small, old-fashioned, backyard cultivator. There will be some, of course, who will studiously disregard these facts and warnings—and achieve notable success. But their experiences must be taken as the "exceptions that prove the rule." Average men and women will do exceedingly well to move slowly and with caution in entering this field.

New Herbaceous Plants from China* — E. H. WILSON, Arnold Arboretum

[EDITOR'S NOTE.—*In the present article, the twelfth in the series, Mr. Wilson speaks more intimately of the plants of his own particular introduction than has been the case in most of the earlier articles. As these plants come to maturity more quickly than trees and shrubs, they are the more easily appraised. There is always room in the herbaceous border for the addition of a meritorious novelty.*]

AMONG the wealth of new material which recent plant exploration work in central and western China has added to the gardens of North America and Europe there is not lacking herbs of more than usual interest and value. My own specialty is woody plants but actuated by an ardent love for flowers of all sorts opportunity to send home material of herbaceous plants was never missed. Moreover, the principal objects of my second journey to China (1903–05) was to try and introduce a yellow-flowered Poppywort (*Meconopsis integrifolia*) which was known to grow in the alpine regions of the Chino-Thibetan borderland. Complete success attended the quest but the plant has not taken over kindly to cultivation in Great Britain and it cannot be recommended as a suitable plant for American gardens. This Poppywort is a biennial and grows from one and a half to three feet tall and has rather globular, clear yellow flowers each from six to eight inches in diameter. It is probably the most gorgeously beautiful of all alpine plants and what joy it would give me could I recommend it to the garden lovers of this country in general. This cannot be done, yet it is probable that in parts of Maine, Oregon, British Columbia and other districts enjoying a cool summer climate and an abundant snowfall in winter, this remarkable plant would thrive. I do not know that it has been given a trial in the regions mentioned. But if this Poppywort is not for the ordinary garden there are other handsome and useful herbs from central and western China which are easily cultivated and are deserving of the widest recognition. In this penultimate article I propose to mention in cursory detail what I consider to be the best of the herbs it has been my good fortune and privilege to introduce to the gardens of western lands. The great majority are vigorous growing and very hardy herbaceous perennials and in this connection a few remarks of a general character may be in order. Hardy herbaceous plants do not at present enjoy the same favor in this country as in Great Britain but each succeeding year appreciation of them increases. Like trees and shrubs, perennial herbs give permanence to garden beauty and are essentials in the order and fitness of things. In every garden, large or small, there is place for them, and in this class of herbs there is a great variety of plants of perfect hardiness and of easy culture which will embellish and beautify any and every site be it the woodland, waterside, open border or the immediate precincts of the home. In a natural state a majority of these showy and vigorous herbs grow on the margins of woods and thickets, in moist meadows or by the sides of streams and lakes. In such places the roots are kept cool and abundantly supplied with moisture and in the autumn the crowns are covered with quantities of fallen leaves. These facts are significant and their appreciation of fundamental importance in the successful cultivation of these plants. If one is desirous of growing good vegetables the soil must be rich and must be kept so by frequent dressings of farm-yard manure or some equivalent fertilizer and this is true in the matter of herbaceous perennials. In addition to rich soil, ample water supply at the root and an autumn mulch of leaves and well rotted manure, frequent di-

Meconopsis integrifolia which was the principal object of Mr. Wilson's second journey to China. Flowers yellow

This remarkable ornamental Rhubarb (*Rheum Alexandrae*) has flowering spikes a yard high and yellow

A new Sage with blue-purple flowers, and growing to a height of two feet or more. (*Salvia Przewalskii*)

Aconitum Wilsonii has deep blue flowers which are borne on six to eight feet high stems in September

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Senecio Wilsonianus has erect flower spikes six feet high, clear yellow color. The bold foliage is quite decorative

Corydalis thalictrtfolia will be welcomed in the warmer sections or for pot culture North. Flowers clear yellow

Astilbe grandis has white flowers and the largest of the genus. Is well adapted to moist soils or for bordering streams

vision of the root-stock and transplanting are essential to ensure full results in border cultivation of most hardy perennial herbs. Lastly, it may be pointed out that this class of plants will withstand low winter temperatures with immunity but summer drought is fatal to results. They revel in regions where in summer hot sunny days are followed by cool nights and where precipitation is even and ample.

For the waterside and woodland the Senecio tribe is full of good things. The genus is one of the largest in the vegetable kingdom. It has a world-wide distribution and in China alone is represented by over a hundred distinct species. The majority of these are weeds pure and simple and of no ornamental value whatsoever. On the contrary, others such as *S. clivorum*, *S. Veitchianus* and *S. Wilsonianus* are of striking beauty. These three species agree in having bold, reniform-cordate dark green leaves each a foot or more across, on long and stout stalks but are otherwise quite dissimilar. The first named as a much-branched flattened inflorescence, one and a half to two feet across and raised well above the luxuriant foliage and bearing masses of Aster-like flowers, each three to five inches in diameter, of a peculiarly rich golden-yellow color in shade unlike that of any other plant in cultivation. *Senecio Veitchianus* and *S. Wilsonianus* have erect spikes of flowers five to six feet or more tall. In the first the spike is simple and tapering and the flowers are clear yellow in color. In *S. Wilsonianus* the spike is cylindrical, like an enormously elongated thyrse, and branching at the base, and the flowers are deep yellow. In both of these plants the actual length of the spike clothed with flowers is two to three feet. Strong clumps of these three Senecios produce in August and September a dozen or more flowering spikes bearing many hundreds of flowers and are extremely attractive.

Senecio clivorum is a very conspicuous member of its family. Flowers Aster-like, three to five inches diameter, of a peculiar golden yellow hue

Quite different to the above but equally charming is *S. tanguticus* which grows four to five feet tall and has finely cut foliage and pyramidate panicles eight inches to a foot high of clear yellow flowers. The individual flowers are small and the whole plant suggests a glorified Golden-rod (Solidago). These Senecios may be easily raised from the seeds which are freely produced and the seedlings grow rapidly and soon make strong flowering plants. *Senecio tanguticus* is apt to make itself too much at home and must be watched or it will usurp the whole waterside or border unto itself.

Closely allied to the above mentioned plants but totally different in appearance is *Artemisia lactiflora*. This new Wormwood has finely-divided, Chrysanthemum-like, aromatic leaves and large feathery panicles of milk-white, fragrant flowers borne on stems from three to four feet tall. In central China this plant is a weed of cultivation and when sending it home I little thought that it would so quickly develop into such a charming and useful garden plant. It may be increased easily from seeds or by division of the rootstock.

Few subjects are more popular for pot-forcing for winter work than *Astilbe japonica* and *A. astilboides*, both old but indispensable plants. Their recently discovered relatives, *A. Davidii* and *A. grandis*, are not useful for this purpose but for the moist border and the waterside they possess much higher claims than our old friends. David's Astilbe was the first of the two known and caused quite a sensation when exhibited. The flowers are of a peculiar shade of red, known before only in the Loosestrife (*Lythrum Salicaria*), and the anthers are blue. The flowering stems are six feet tall with the flowers densely crowded on much-branched panicles

Rodgersia aesculifolia for moist meadow land or on rich humus-clad rocks. The white flowers are fragrant

Astilbe Davidii, with flowers of red, has been used largely by hybridists in making new border "Spiraeas." Needs a moist place

having ascending lateral branches and two to two and a half feet long. Partial shade is best for this plant since in strong sun the flowers bleach. *Astilbe grandis* is similar in habit and vigor of growth but has pure white flowers larger than those of any other Astilbe, and the lateral branches of the flower panicle spread horizontally. The leaves of both species resemble those of *A. japonica* but are much larger and of greater substance. Hybridists in France and Germany have employed these and other species in the breeding of a new and beautiful race of hybrid Astilbes of which *A. Arendsii* is the type and there are many named varieties on the market. These Astilbes are easily propagated by division of the rootstock and the species may be raised from seeds without difficulty.

Well fitted for planting alongside Astilbes or on wet humus-clad rocks are *Rodgersia aesculifolia*, *R. pinnata* var. *alba* and *R. sambucifolia*. These are strong growing plants with broad thyrsoid panicles, each a foot to eighteen inches long, of fragrant flowers borne well above the foliage on spikes from three to five feet tall. In *R. sambucifolia* the leaves are truly pinnate but in the others they resemble in form and texture those of the Buckeye (Aesculus). The flowers are of the purest white. Rodgersias are easily raised from seeds but they grow slowly; the rootstock is a stout rhizome and it is best to commence with strong established roots.

The Rhubarbs are well known and their bold foliage and tall flower spikes make them noble subjects in a way, yet they can scarcely be classed as choice herbs. Very unlike an ordinary Rhubarb, however, is the new *Rheum Alexandrae*. This remarkable plant has neat, ovate-cordate, shining dark green leaves, each a foot or more long, and an erect tower-like inflorescence a yard or more tall, the showy part of which consists of broad, rounded, decurved cowslip-yellow bracts overlapping one another like tiles on a house and beneath which, secure from rain, nestles clusters of inconspicuous flowers. This Rhubarb is native of the alpine meadows and moorlands of the Chino-Thibetan borderland where its peculiar and rich colored inflorescence makes it conspicuous from afar. The plant grows well in any good, rich, moist garden soil and is fond of partial shade and of cow dung. It is easily raised from seeds but requires several years to develop strong flowering crowns.

The Aconites or Monkshoods are old-fashioned flowers and count among their numbers many good garden plants. One of these is *Aconitum Wilsonii* which is allied to the old *A. napellus* and is a strong growing species with stems from six to eight feet tall and flowers in September. The leaves are leathery, dark green and deeply incised; the flowers large and deep blue in color. After the main spike is past axillary branches continue to bear flowers until the advent of sharp frosts. The rootstock is tuberous and the plants require a rich soil and to get established before the best results are obtained. Another good and very distinct Monkshood is *A. Hemsleyanum*. This is a twining plant growing from eight to twelve feet high, and in a wild state frequents thickets where it rambles over shrubs and festoons them with a wealth of large blossoms in August and September. The flowers vary considerably in color and although most people like the deep blue best others declare the pale blue forms equally beautiful. The rootstock is tuberous and the twining stems, if made into cuttings in late July, root readily. *Aconitum Wilsonii* is easily raised from seeds but the opposite is true of *A. Hemsleyanum*.

Primula Cockburniana. Orange-scarlet flowers each an inch across on stalks eighteen inches high. The color of flower is very rare in plants. A biennial

Primula pulverulenta is a charming, hardy Primrose, having rich crimson flowers on white dusted stalks two feet or more high

Artemisia lactiflora. A new Wormwood with feathery panicles of milk-white, fragrant flowers. Three feet high. A welcome addition to the hardy border

The Meadow-rues (Thalictrum), although they have beautiful leaves, are not regarded as showy garden plants yet the new *T. dipterocarpum* is one of the loveliest herbs imaginable. It grows eight to ten feet tall and the flower stems are very much branched and bear relatively large lavender-purple flowers in great quantity. The leaves are broad and much divided and the whole habit and appearance of the plant is most graceful and elegant. It requires a good, well drained soil, is fond of lime and revels in sunshine. Another sun-loving herb is *Salvia Przewalskii* which grows two to two and a half feet high and has large blue-purple flowers and good foliage.

The Iris family is one of the most beautiful of all and *Iris chrysographes* and *I. Wilsonii* are welcome additions. These newcomers are allied to the well-known *I. sibirica* and have a similar habit and fibrous rootstocks. They grow two to two and a half feet high, are very free flowering and have narrow deep green leaves. In *I. chrysographes* the standards are brilliant dark purple-violet and the falls reddish-purple, each with a median stripe and numerous spots of golden-yellow near the base. *Iris Wilsonii* has clear yellow flowers

with a copious veining of purple on the lower half of the falls. These two new species delight in a moist loamy soil and are not averse to partial shade and are well suited for planting by the side of water.

In recent years China has given to gardens in the west many very beautiful kinds of Primroses and among them *Primula pulverulenta, P. Cockburniana* and *P. Veitchii.* In habit and in foliage the first named resembles the well known *P. japonica* but has flower scapes a yard or more tall and each bears nine to eleven whorls of flowers. The individual flowers are a third larger than those of the Japanese Primrose, rich crimson in color and often twenty or more in a single whorl. The flower scapes are clothed with a white farina and it is this peculiarity together with its large flowers and taller scapes that makes this new plant so very superior to *P. japonica* and undoubtedly one of the very finest of all hardy Primroses. There is an albino form, known as var. Mrs. R. V. Berkeley, which has cream-white flowers each with a rich orange colored eye, and is a worthy companion to the crimson-flowered type. In Massachusetts *P. pulverulenta* thrives and is perfectly hardy and in one garden I know, that of General Stephen M. Weld at Dedham, Mass., there are large colonies of this plant naturalized from self sown seeds. It is a true perennial of vigorous growth, is very floriferous and remains in flower for a couple of months.

Primula Cockburniana has neat obovate, pale green leaves and bright orange-scarlet flowers, each an inch across, and borne in several whorls on scapes one to one and a half feet high. The color of the flowers in this Primrose is unique in the family and is one of the rarest colors in the vegetable kingdom, but, unfortunately, the plant is virtually a biennial. Hybridists, however, have secured several crosses between it and *P. pulverulenta* and some of these hybrids have the perennial character of the last named and flowers of the same color as those of *P. Cockburniana.* In stature and habit these hybrids, to which the names Unique and Unique Improved have been given by the raisers, are intermediate and there is every possibility of a new race of hardy Primroses, distinguished by their remarkable orange-scarlet colored flowers, being developed from these two species. A shady position, fairly heavy loam and cow dung and abundance of water at the roots are the essentials for the successful culture of these Primroses. An ideal spot is the side of a woodland stream free of rank weeds.

The third species (*P. Veitchii*) is a true perennial, with leaves resembling those of *P. obconica* but with a dense felt of white hairs covering the underside. The flowers are of a pleasing bright rose color and are freely produced in whorls on scapes one to one and a half feet tall. A hardy *P. obconica* with non-poisonous leaves sums up *P. Veitchii.* A light loamy soil rich in leaf-mold and a moderately dry situation are necessary for its successful cultivation and under such conditions it will naturalize itself.

Although hardy in the warmer parts of this country only, *Corydalis thalictrifolia* and *C. Wilsonii* deserve mention here. The first has leaves rather fleshy in texture in shape resembling those of a Maidenhair Fern, and very numerous erect racemes of large clear yellow flowers. The other is a smaller plant with finely cut leaves, covered with a white farina, and erect racemes of deep yellow flowers. If seeds be sown in May in a cool greenhouse and the seedlings potted on they will flower the following winter. Their culture is of the simplest and those on the lookout for pleasing decorative plants, for basket or pot culture in a cool greenhouse, will do well to give *C. thalictrifolia* and *C. Wilsonii* a trial.

Lilies belong in the category of herbaceous perennials and I am tempted to add a word on their behalf. At the commencement of this article it is emphatically laid down that a rich soil is necessary to obtain full results in the herbaceous border. Lilies are an exception. To them manure is absolutely inimical and I do so much wish that lovers of these flowers would appreciate this fundamental truth. It is true that some, like *Lilium tigrinum* and *L. Henryi,* will withstand abuse in this direction as in others, but there are very few that can. The herbaceous border with its rich soil is not the place for Lilies. They should be planted in association with low growing shrubs, as stated in my July, 1915, article, "Consider the Lilies," or with ferns.

In the Regal Lily (*L. regale*) it is generally conceded that garden-lovers have a "jewel beyond price," but its discoverer is fearful lest its admirers undo it with kindness. Loam, leaf-soil, good drainage and full exposure to sun and air are the essentials demanded by this Lily. Do not give it fertilizer in any form any more than you would give an infant in arms beefsteak. And the latter is true for Lilies generally in the outdoor garden where they are planted in the hopes of their yielding flowers from year to year. Mulch them with leaves in the fall but do not, if you value your Lilies, feed them with manure.

[Next Month: Hardy Rhododendrons]

The Story of the Modern Gladiolus

MONTAGUE CHAMBERLAIN, Massachusetts

THERE is "fashion" in flowers as well as in other things. They come and go in gardening, and just now the Gladiolus is much in vogue. But it is not a new flower—not by a long way. The Gladiolus was not well known, however, before Queen Victoria's day, and indeed tradition tells us that it was Her Majesty herself who started it on the road to popularity. While on a visit to the younger Napoleon the Queen saw in the gardens at Fontainebleau, at that time under the care of the elder Souchet, several varieties of these splendid blossoms which had been produced by Souchet, and she was so impressed by their beauty that she carried a number of the bulbs back to England.

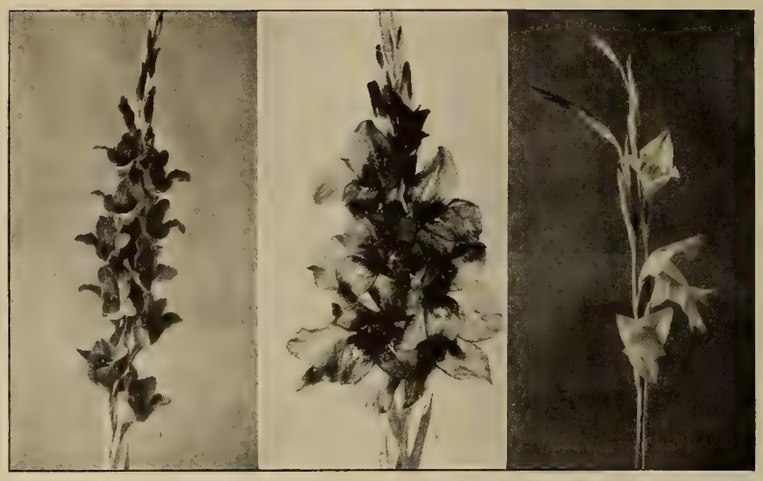
We use the term "produced" when telling of Souchet's work, because these flowers, with all their wealth of beauty and their wonderful variations in form and color, are the result of cross fertilization—they are not domesticated wild flowers. The wild Gladiolus is, as a rule, rather insignificant, only a few varieties being at all attractive. But it was discovered that these plants with the homely blossoms had latent possibilities which could be developed, and Souchet had taken advantage of this discovery. He was not, however, the first to attempt these experiments, for long before his day others had been at work on them.

For forcing into flower in early spring and general indoor cultivation, use the varieties of *Gladiolus Colvillei.* The colors are light and the flowers slender and graceful

For many years the wild Gladiolus had been known to horticulturists

through specimens from southern Europe and western Asia, and in 1745 plants of this genus began to reach them from South Africa, which country, by the way, has furnished most of the important varieties, those from which the major part of the modern varieties have been evolved.

Souchet achieved his success by crossing these wild flowers with a hybrid named *gandavensis*, which was first offered to the public in 1841. The production of this hybrid was for a long time credited to Van Houtte, but it is now known that the originator was Beddinghaus, gardener to the Duke of Arenburg, from whom it was purchased by Van Houtte, who named it in honor of his native city, "Glaieul de Gand"—Gladiolus of Ghent. By combinations with this hybrid Souchet laid the foundation for the famous *gandavensis* strain, from which has come so many of our beauties. One characteristic of this strain is the large fleshy stem, which absorbs sufficient water to develop all the buds after the spike is cut, and though these hybrids have been crossed with wild species as well as with other hybrids, gaining thereby in form and in color, the resultant progeny invariably bear the stem that is peculiar to the type.



On the left is the old Brenchleyensis, bright red, small flowered; on right, G. primulinus, yellow; in centre, typical modern large flowered form

But Souchet was not the only Frenchman who achieved success in the development of this flower, for the renowned Victor Lemoine must be credited with equally as important work. He gave us the *Lemoinei*, a race with blossoms of great brilliancy, which appeared in 1878; and in 1889 he introduced another race, the *Nancieanus*, named for the city of Nancy. At a later date Lemoine added to his hybrids several of lilac, heliotrope and bluish-lavender, of which the best known is Baron Joseph Hulot, first seen at the Chicago Exposition in 1903.

Princeps, a well marked hybrid having large bright red flowers, but only a few opening at a time

About the same time that Souchet and Lemoine were conducting their experiments, Max Leichtlin, of Baden Baden, produced a race of large and wide opened blossoms of brilliant coloring. After working over the derivatives for some ten years, Leichtlin passed the bulbs to Hallock, at that time the leading American specialist, who spent about ten years improving the strain and then passed the bulbs to John Lewis Childs who, in 1893, introduced the several sorts to the gardeners under the racial name of *Childsi*. The development of this strain has continued in the Childs nurseries and from it have come some of our finest varieties.

There has been much cross-breeding of these three main strains—*gandavensis*, *Lemoinei*, and *Childsi*—and the derivatives form the major part of the long list of wonderful flowers that are now available. They are known collectively as the late-flowering group, blossoming in midsummer and later. An early-flowering group is composed of the *Colvillei*, which was originated in the gardens of Mr. Colville, and the *nanus* strain. These are half-hardy sorts—that is, they can be left in the ground through the winter, if well protected by a heavy mulch, and will keep without mulching when planted south of Washington. They bear small flowers and have thin stems, and are chiefly used for forcing. Still another strain has been named *precox*. It displays its precocity by flowering the first year from seed, if planted early in the year under glass.

About the time that Childs purchased the *Leichtlini* strain from Hallock, Mr. Luther Burbank began experimenting with the Gladiolus and produced a number of good forms, and between the inspiration of these flowers and Burbank's enthusiasm, a Canadian banker, Mr. H. H. Groff, was induced to try his hand at cross-breeding these plants. He bought Burbank's seedlings and began the work that has given us many of our very best sorts. At first these were offered to the public in mixtures but later the more promising were segregated and named.

Contemporary with Burbank and Groff, in the development of the Gladiolus, was Dr. Van Fleet, who won distinction by producing a dazzling scarlet flower of immense size which he named Princeps. This variety was first exhibited in 1903, and at once gained a leadership which it still maintains.

The results that had been achieved stimulated other Americans to have a try at cross-breeding, though perhaps the strongest incentive lay in the high prices that had been paid for exceptionally fine varieties. For example: Banning, of Ohio, thought he saw in one of Groff's seedlings, that had come to him in a mixture, a promising plant. He separated it from its fellows, named it America, and after propagating the bulbs for a time sold the bunch to Childs for four thousand dollars. Also Dr. Van Fleet increased the stock of Princeps a bit and passed them to Vaughan for one thousand dollars.

Whatever the stimulus, numerous others entered the lists for the possible prizes, though it should be stated that only a comparative few have as yet been prize winners.

Of our successful hybridizers the leading place would probably be accorded to A. E. Kunderd, who has undoubtedly originated more sorts of superior merit than any other American grower, with the possible exception of Groff and Childs, and in superiority of individual varieties Kunderd has surpassed all others. Besides winning this leadership, Kunderd has produced a new race which has "ruffled" petals. Several of the ordinary varieties show a more or less stable tendency to this peculiarity, but the *Kunderdi* are heavily fluted and pass the characteristic to their progeny.

Mrs. Francis King, one of the most popular of modern varieties; pinkish, with shadings, and slightly ruffled

A few typical portraits showing the modern developments in garden Gladiolus

Panama (pink) Dawn (coral pink) Lemoinei (many colors) Kunderdi (ruffled) America (clear pink)

The veteran grower, Matthew Crawford, has given us the well known May, besides Margaret and Jessie and others. His Mrs. Watt must be given a place among the finest. We get in the habit of calling Mr. Crawford a "veteran" because he has been in the game longer than the rest of us, but he is not old, he is an active young fellow of seventy, or thereabouts.

Of those who have contributed to our present list one or more of conspicuous merit we must add the names of Banning, Christy, Cowee, Stewart, Miller, Black, Coblenzth, Woodruff, Teas, Kirchoff, Gage, Joerg, Harvey, Tracy, etc. Mr. Groff tells of a Mr. Moore, of Indiana, who has done excellent work. On the roll of honor we must place the name of one woman, Mrs. Austin, of Ohio, whose beautiful blossoms were first exhibited in 1914 and were seen again last year at Newport, and in at least one Eastern garden. Mrs. Austin's productions rank with the finest.

While the Americans have been thus engaged the men of Europe have not been idle, and we must credit them with sending us many varieties of exceptional beauty. The one man who stands ahead of the others as a producer of superior sorts is the German, Pfitzer, though close to him come the Frenchmen Barre, Brunelet, Vilmorin, the younger Souchet, and the Lemoines. The English firm of Kelway have produced a large number of new sorts but few of them have found favor with American growers, though their Golden Measure must be reckoned among the elite. In Holland very little attention was given to these splendid flowers until quite recently, though within these few years they have brought out several that are prize winners.

Growing seedlings is fascinating work —"sport" it might be called, for it evokes the spirit of the gambler that is either active or latent in most of us. A grower puts into his carefully prepared seedbed some twenty thousand or more of these tiny seeds, each one of which will produce a blossom that will differ from its neighbor. Some of these seeds were taken from plants that had been selected to yield desired results, and had been hand pollenated; while others have been pollenated by the bees and the hummingbirds. One of these may prove the very best seedling of the year, and another may produce the very finest blossom that was ever seen.

For two years at least, and in some cases three, he must tend that bed of seedlings most carefully—they require much more care than bulbs. After the years of waiting and watching and toiling the time of blooming approaches, and at last comes his supreme hour. Will his dreams be realized? Generally there is no single redeeming blossom to be found, and the entire lot is thrown to the "cheap mixture." But he is a true sport; he tries again. And so it comes about that year after year thousands upon thousands of these cheap mixtures are put on the market. Many of these find their way to the department stores, from whence they are distributed to the multitudes who love flowers but have little money to spend on them.

Yet, mind you, they are good, these seedlings, and many will compare favorably with some of the popular sorts. Then why, if these seedlings are good, are they sold as "mixtures"? The answer is that a seedling, to be worth while, must be more than just good—it must be superior. To make its way to popularity and to success it must have distinction or must be better than similar sorts already established.

To propagate a seedling until a stock of bulbs has been accumulated of sufficient quantity to warrant them being put on the market, takes usually about ten years, and each year the bulbs and their increase must be planted and harvested and cared for, at an expense that will be repaid only if the variety is so much superior that it will win in competition.

It is an interesting fact that it is often difficult for the originator of a variety to form a correct judgment of its real merit. Sometimes his judgment is right, but more frequently it is wrong; and he will not only extol those that others fail to admire, but at times he will think rather slightingly of those that others persist in praising. It is told of Mr. Groff that he sent out America, Mrs. Francis King and Independence in mixtures, and, by the way, in each case it was an American grower who discovered them. Likewise, with similar disdain, Kunderd put in a mixture that brilliant beauty, Mrs. Frank Pendleton, and he valued but slightly his lovely Myrtle until the Massachusetts Horticultural Society awarded it a silver medal.

I recall quite distinctly some Gladioli that grew in my grandmother's garden. The colors were red and yellow. The blossoms, which were long and narrow, were not open and lily-like as the modern forms are, and they were set on one side of the stem, said stem being two to three feet high.

Of the varieties that were grown in that period there are but few remaining in cultivation. Souchet's Shakespeare is still to be found in the catalogues, though it is used chiefly for forcing and appears in the shops in the early summer. Brenchleyensis alone retains popularity with the amateur gardener. This splendid flower—it is a dazzling scarlet—was produced by a Mr. Hooker, who lived in the English town of Brenchley, in whose honor the variety was named. The first bulbs put on the market were handled by Youell, the father of the present secretary of the American Gladiolus Society. To-day America sends Gladiolus bulbs to Europe.

A Summer With Some of the New Gladioli

E. E. TRUMBULL, New York

NOTES MADE BY AN ENTHUSIAST FROM ACTUAL EXPERIENCES IN 1915—A "POOR MAN'S" BULB THAT, FROM A SMALL OUTLAY, WILL GIVE AMAZING RESULTS ALL SUMMER

HAVING grown Gladioli for many years past I thought I was fairly well acquainted with them, yet never had they afforded me such keen delight as during the past season. Partly because never before had I grown so many of the new and rare sorts; partly because the summer of 1915 was exceptionally favorable to the highest development of the flowers. When in their prime, with the flowers before me I made notes of the characteristics of some of the most attractive. These are as follows:

The earliest to flower was *Pink Beauty*. At first I was disappointed in the medium sized flower, the color, peachblow pink with a heavily marked crimson blotch, was lovely. Later when I saw a vase of the brilliantly colored long spikes I had to admit they had a beauty all their own and well deserved the praise bestowed on them. They are sturdy growers and good multipliers.

Halley was the next earliest, beginning to open its large salmon pink flowers when Pink Beauty was in its prime. I fell in love with this soft-toned flower from the very first, with its creamy blotch on the two lower petals through which runs a narrow stripe of bright red. This sort increases rapidly.

Among the very best of the new sorts I would place *Panama*, a seedling of America. The flower is very large, the color a bright rich pink similar to the Hybrid Tea Rose Caroline Testout. It is a very strong grower, one dozen bulbs giving me twenty-four flower spikes and the same number of large bulbs in the fall and dozens of baby bulblets.

Mrs. Frank Pendleton is another flower which cannot be too highly lauded. It is a large flower, beautifully set on a strong straight stalk. The petals are pinkish white overlaid and shaded with the sweetest shade of rose pink. Each of the three lower petals has a large blotch of strawberry red with a stripe of darker color through the centre. The general effect is showy and brilliant. A satisfactory variety in every respect.

Desdemona is a flower for the artist. The petals are a dull soft pink shading much deeper toward the edges and tips of petals. One half of the three lower petals is creamy white with dark blotch and penciling and shading of violet in throat. The anthers are pink on top, lavender on the underside. An exquisitely beautiful flower of real art shading. Will not harmonize with pink or red; combines fairly well with the peachy tint of Glory, but is most beautiful with Niagara.

Pride of Goshen is one of the largest flowers, well placed on unusually strong tall stems. The color is dainty pink, shaded deeper toward the edge of the petals; bright carmine blotch on two lower petals and in throat. The flower is daintily ruffled which adds much to its beauty.

Wild Rose is just what its name implies, a wild rose pink with a touch of carmine in the throat. A very satisfying variety.

Empress of India is one of the darkest shades of red; the buds before opening are black. I did not care particularly for this sort, but—

War. I do not know how to describe this variety; it stands so straight and tall. The flower stems when cut measure more than three feet in length. The large, well opened flower is deep blood red. It is almost impossible to imagine the imposing appearance of a large vase of these stately beauties.

Among the yellows and creams are Schwaben, Niagara, Dawn and Dora Kraiz.

Schwaben is one of the largest giant flowered clear yellow varieties, with small brown spot in the throat. The buds are greenish yellow. One of the most satisfactory.

Niagara is an immense wide open flower of soft yellow tinged with pink on some of the blooms. It is a strong grower and a great multiplier.

Dawn is among the rarely beautiful Gladioli; very large, slightly ruffled cream with the softest penciling of pink on edge of petals. A flower to love.

If one grows the Gladiolus for cut flowers it is impossible to have too many whites. I have found the following to be entirely satisfactory.

Lily Lehman, large, white flushed pink. The flowers of *Reine De L'Anjou* are nearly pure white, with slight crimson markings in throat. The plant is a strong grower, often producing three flower spikes. Much like the old variety *Augusta*. One will make no mistake in growing large quantities of *Gil Blas*. Flowers are large, pure white, with lemon shading, and just a touch of carmine in the throat.

Peace is no longer a new variety, but it is such an exceptionally large fine sort I cannot omit it from my list of best whites. The flowers are arranged on an extra tall strong stem. The bulbs multiply rapidly, which is certainly an added attraction.

Rochester is one of the most exquisitely beautiful white flowers in existence. Mere words cannot do justice to the beauty of this pure white, daintily ruffled creation, without spot or touch of color. Even the anthers are pure white. It is a satisfactory variety from all standpoints. It is not as large as Peace, and the effect of a vase of these beauties is dainty rather than imposing.

And now come the blues: *Baron Hulot* is an old sort which I have grown for years with increasing pleasure. The color is rich indigo blue and I prefer it to any of the blues I have seen. The bulb is strong and increases rapidly. *Viola* and *Senator Volland* are almost identical. The flower is not quite as large as Baron Hulot, and of a lighter color, more of a mauve blue with a blotch of garnet zoned with yellow in the throat. All these varieties are reliable growers. The three sorts combine well with some of the soft yellow and white varieties.

Badenia is a flower for the collector only; to me it was a disappointment. I had heard so much about the beauty of the flower, and it *is* beautiful all right, but it is not a strong grower; the new bulb made was small—and not a single baby bulblet! I would not advise the tyro to buy Badenia for it is expensive and fifty bulbs of America, Halley or Mrs. Francis King may be had for the price of one Badenia, and each of the above is a better flower of its kind.

One of the finest things about the Gladiolus is, you do not need to have a California gold mine to obtain a fine collection; you have only to wait a year or two and the finest varieties multiply so rapidly that the price of a few bulbs is soon within reach; or if, like myself, you can't wait, you may buy at least one bulb each, of several rare sorts. By leaving them in the ground as late as possible in the fall the little bulblets which form around the new corm, will be much larger than if the bulb had been lifted at the first frost.

I lift the bulb carefully, remove, and plant the tiny bulblets *at once* in a box of dry soil. The box is labeled and stored in the cellar until early spring when it is brought up, watered, and placed in a warm light room to commence growth. In this way the little bulblets gain several weeks over those planted in the garden. Of course the boxes are set out of doors later. A few of the larger of these bulblets in the boxes always bloom the first season, all of them the second.

When I have more of the bulblets than I can care for in boxes they are stored during the winter in dry sand; in the spring they are *peeled* and planted in the garden. This matter of peeling the bulblets is important as then they come up very quickly, while those not so treated are late to start, and many of them never grow at all. In this way I quickly acquire a collection of choice varieties at slight cost. If every amateur who reads this page will invest in some of the new varieties of Gladiolus, when they come into lovely bloom, will I am sure, vow never to forego such a summer of pleasure again.

Of all our summer and autumn blooming bulbs, the Gladiolus I think has most claims to the consideration of the lover of flowers. The plant is neat, thrifty and attractive, the blossoms are large, brilliant and stately and freely produced. The colors embrace the loveliest tints imaginable. It is also most enduring, a spike cut when the first flowers have opened, and placed in water in the house, will keep in fine condition for at least two weeks, opening out its upper blossoms to the last bud. Added to its many other attributes is the fact that it occupies but small space in the garden—several hundred may be grown in the space of a dozen Dahlias.

~NOVELTIES IN THE BALANCE~

Among the season's floral offerings for the outdoor garden are a remarkable lot of new Dahlias, some of which are here presented. The recent development of the loose-built flower has drawn many new admirers to this showy flower for the million

DAHLIA MRS. W. E. WHINERAY (Peony-flowered). Rose suffused with clear yellow, with centre petals curling over the stamens. Very attractive (Burpee)

DAHLIA SUNSHINE (Duplex), described as Pinard yellow shaded with salmon yellow which, under artificial light appears pink. Awarded The Garden Magazine Achievement Medal at the American Dahlia exhibit, New York 1915. Is being distributed for the benefit of the American Red Cross (Mrs. C. H. Stout)

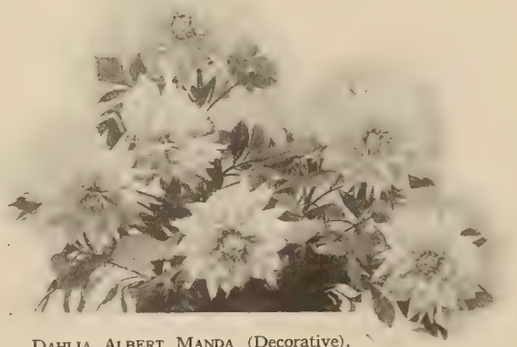
DAHLIA GEORGE L. STILLMAN (Cactus) a rich, velvety light maroon. Winner of the National Dahlia Society's cup, Portland, Ore., September, 1915. (Stillman)

DAHLIA MT. SHASTA (Decorative), a beautiful flesh pink. Fully developed flowers measure 8½ inches in diameter (Stillman)

DAHLIA JOHN WANAMAKER (Peony-flowered). Free-flowering; petals broad, peculiarly twisted and curled, of a violet mauve (Peacock)

DAHLIA CRYSTAL (Cactus), silvery pink shading to ivory white in centre. Long, twisted, incurved petals; flowers large and of fine form. (Dreer)

GLADIOLUS LOVELINESS, a clear cream-tinted sulfrano pink. The flowers are large and well placed, nearly all being open at the same time (Tracy)



DAHLIA ALBERT MANDA (Decorative), producing lemon white and pink flowers nearly a foot in diameter! (W. A. Manda)

GLADIOLUS ROUGE TORCH. The flower is large, creamy-white, with a red torch-like tongue on inferior petals. The contrast is very striking (Tracy)

DAHLIA MRS. G. W. KERR (Peony-flowered). Color, rich reddish plum, shading with age to light lavender. Flowers 6 to 8 inches in diameter are of good lasting quality (Burpee)

DAHLIA MRS. MINNIE BURGEE (Cactus) scarlet, said to be most floriferous. Has fine dark foliage (W. A. Manda)

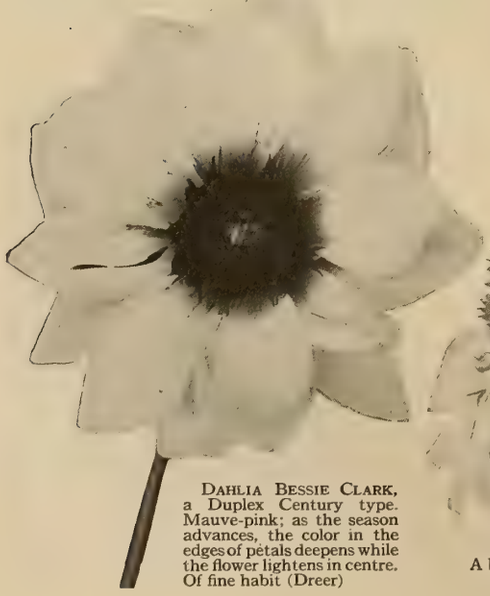
DAHLIA MRS. HUGH DICKSON (Peony-flowered), a rich salmon with light buff pink suffusion. Inner petals artistically curled and twisted (Burpee)

DAHLIA, NIBELUNGENHORT (Cactus) old rose with golden-apricot suffusion. Free flowering; flowers 7 to 8 inches across borne on long stems (Dreer)

The Single white Dahlia, NEWPORT ANGELL, is not unlike a dogwood blossom. Keeps splendidly when cut

DAHLIA G. H. JAMES (Peony-flowered). Flowers large, quite flat, of a light cream color, with a noticeable waxy lustre. Petals taper abruptly to sharp points (Stillman)

DAHLIA DREER'S YELLOW (Show), an early and profuse bloomer. Fully mature flowers are immense balls held erect on long, stiff stems. Ideal for cutting (Dreer)



DAHLIA BESSIE CLARK, a Duplex Century type. Mauve-pink; as the season advances, the color in the edges of petals deepens while the flower lightens in centre. Of fine habit (Dreer)

A basket of mahogany and salmon-pink peony-flowered Dahlias (By Mrs. Otis P. Chapman Jr.)

A striking new Collarette Dahlia which is free flowering and of unusual beauty. Can be had in almost any color (Burpee)

Dahlia Devotees, Then and Now

CLARK LEONARD THAYER, Ithaca N. Y.

FOR MORE THAN A HUNDRED YEARS THIS GORGEOUS PLANT HAS HELD SWAY, AND NOW FINDS MORE FAVOR THAN EVER—A FLOWER FOR THE MILLION

THE great present day popularity of the Dahlia is due to its wide range in color and form and its adaptability to several purposes. In color there is scarcely anything to be desired, unless it be blue and its related shades. As to form, what other plant, unless it be the Chrysanthemum, shows such diversity, ranging from the single eight-petaled flower to the extremely double ball-shaped, with all sorts of intermediate forms. And what could take the place of the Dahlia in the garden in late summer and early fall, adapted equally well for garden decoration, for cut flowers, and for exhibition purposes? Is it any wonder that there are Dahlia enthusiasts, and even organizations to foster the growth of the flower?

As we would naturally expect from the appearance of the single flower, the Dahlia belongs to the Daisy family, a family which includes a large number of our important garden flowers. The Aster, Cosmos, Coreopsis, Helianthus, and many others, including the Chrysanthemum, are all members of this family. Also, that very common weed, the Beggar-tick or Stick-tight, is a close relative of the Dahlia.

There are probably ten or twelve wild types or species of the Dahlia, only six of which are of interest to the flower lover. These are found chiefly in the higher parts of Mexico, at an altitude of 5,000 feet or more above sea level. Hence, in its natural environment, the Dahlia has fairly cool, but not cold conditions, also a rather dry atmosphere. In its native habitat it is perennial, but it can never become so in the North, since it cannot endure freezing; therefore, we need have no fear that the Dahlia will ever become a weed like the beggar-tick.

Two of these six species, Dahlia imperialis and D. excelsa, are tree-like forms, growing to a height of twenty feet or more. These are said to thrive in Southern California. If desired in colder regions they must be grown under glass; otherwise the plants would be injured by frost before they had bloomed.

Dahlia Merckii is worthy of note because of the finely cut character of its foliage. It grows to about four feet in height and is more widespreading than most of the other types. The flowers are about two inches in diameter, chiefly in shades of lilac and purple, no reds or yellows being found in the wild forms. This species is known to have been concerned in the production of some of our present day varieties.

Probably many of our good single varieties have been obtained from Dahlia coccinea. It is a form in which the color range seems to be quite restricted, varying only from scarlet through orange to yellow. So far as known, no double forms have been derived from this species. It was the reintroduction of this species into England about 1880 that restored, to a certain extent, the popularity of the Dahlia, at that time in a state of decline owing to aversion toward the highly developed Show and Fancy types.

Dahlia Juarezii is deserving of second place in importance, since it is the parent of the so-called Cactus Dahlia. It was called the Cactus Dahlia because of the resemblance of the flower in form and color to the brilliant crimson-flowered Cactus, Heliocerus speciosus (formerly Cereus speciossisimus). At present, however, the name is rather inappropriate, since the color range has been so extended that it now includes practically all of the important, well-defined colors that are found in the Dahlia. Also, the form has been changed to such a great extent that there is very little similarity between the flowers of the Showy Cactus and many varieties of the Cactus Dahlia.

Dahlia rosea, formerly known as D. variabilis, is without doubt the most important species to the garden. It was from this form that the Show, Fancy, and Pompon types have been derived, and it is quite certain that it has also been connected in one way or another with the introduction of other types. It is, therefore, safe to assume that a very large number, perhaps the majority of our garden varieties, can be referred to this species.

Probably the first known description of the Dahlia is found in a book by Francisco Hernandez on the plants and animals of New Spain, published in Madrid in 1615. He described and illustrated two forms of a plant, called in Mexico the "Acocotli," now known to be the Dahlia. Nothing more seems to have been written concerning the Dahlia, or Acocotli, until 1657, when a description and figures, based on the work of Hernandez, was included in a book by Vitalis Mascardi of Rome. Then the Acocotli seems to have been unheard of for more than a hundred years.

In 1787, Nicholas Thierry de Menonville, a French botanist, was sent to America by Louis XVI to obtain the cochineal insect and the plant on which it lived. On his return to France, De Menonville published an account of his expedition. Of the things of interest which he saw on his travels, one was a plant growing in a garden in Guaxaca, "with flowers as large as Asters, on stems as tall as a man, with leaves like those of the Elder tree." This surely must have been the Acocotli, and De Menonville's description of it is the first record that we have of the Dahlia as a cultivated flower.

The botanical name Dahlia was given to the plant in 1789 by Abbé Cavanilles, Director of the Royal Gardens at Madrid; it was so named in honor of Professor

A Dahlia garden at Hartford, Conn., in which many prize winning blooms are produced

The Anemone-flowered type is a recent development and is well adapted to decorative use

Andreas Dahl, a Swedish botanist. Cavanilles grew his plants from seed sent to him by Vincentes Cervantes, Director of the Botanical Gardens of Mexico; from this seed he obtained not only single flowers, but also one plant which produced semi-double flowers.

The Dahlia was introduced into England in 1789 by Lady Bute, wife of the English ambassador to the Court of Spain at Madrid. Through the kindness of Cavanilles she was given some of his seeds and sent them to England. Plants were grown, but owing to incorrect methods of culture or caring for the tubers, they were lost within two or three years. The first successful introduction into England dates from 1802. In that year John Fraser, a noted English collector of American plants, obtained seeds from Paris, from which seeds he grew and flowered plants successfully.

Very little seems to be known concerning the early history of the Dahlia in the United States. It is apparently unknown when it was first introduced into cultivation, or from what country it was received, but it may perhaps reasonably be assumed that the earlier enthusiasts imported the then novelty from Europe as now, indeed. The first known work on the Dahlia in this country was a "Treatise on the Culture of the Dahlia and the Cactus," by E. Sayers, published in Boston in 1839. Sayers mentions the fact that it is only within ten or twelve years that any fine specimens have been seen. He lists eighty varieties, about fifty of which are described as new. He also says that no person has done more for the introduction and advancement of the culture of the Dahlia than George C. Thorburn of New York, "who yearly flowers many thousands of plants." Others who had large collections in those early days were Mr. Hogg and William Read of New York, Messrs. Hovey of Cambridgeport, Mass., and Samuel Sweetser and William Leathe of Cambridge, Mass.

Although Abbé Cavanilles obtained a plant with semi-double flowers in 1789, it is supposed that the first strictly double flower originated with M. Donkelaar of Louvain, Belgium, in 1814. Starting in 1812 with seeds from single flowers and selecting seed each year from those showing an increase in petalage, he obtained a true double form in the third generation.

This was the first important break in the type of the Dahlia, but what numerous breaks have occurred since that time, either as a result of crossing or hybridizing, or as "sports"! And what increased popularity these breaks have brought to the Dahlia, when introduced as the Fancy type, the Peony-flowered type, etc., and in more recent years the Anemone-flowered type. However, the Cactus type, introduced in 1872, has surely done more than any other one type to increase the favor of the Dahlia within recent years. With this form concerned in the parentage, many very attractive and pleasing varieties have been produced which have done much to restore to the Dahlia its former popularity, lost when public opinion decreed against the too highly developed Show and Fancy types. To-day, the Dahlia is becoming fashionable again.

Among the singles are great diversity of form and color. The "Single Cactus" is curiously attractive

For late summer bloom in the mixed border, the Dahlia is unique for rich tones of color

Dwarf varieties of the bedding type will surely satisfy the demand for a flowering plant

The high growing Cactus varieties will afford the best material for tall effects in gardens (Parsival)

Perennial Asters for Fall Flowers—B. Y. MORRISON

MODERN IMPROVEMENTS IN THESE HARDY PLANTS FOR LATE BLOOM OFFER A SURPRISING RANGE OF COLOR, SIZE AND FORM OF FLOWER—OPPORTUNITIES ALSO FOR WILD GARDENING

FOR the late herbaceous border all the hardy perennial Asters have a very real value. Fair soil, in sun or half shade, division and resetting as for other rapidly growing perennials, plenty of water through summer droughts to keep the stalks well clothed with leaves, and a location not too crowded in which to develop the late appearing flower stalks—these are the conditions asked and surely they are not exacting.

Except the dwarf forms and the amellus sorts they are plants for the middle and back of the border. Here they will elbow many other composites and care must be taken to keep the rosy New England Aster forms well away from the greenish yellow of the Heleniums or the purer yellows of the Helianthus species. Stray panicles of Phlox show well against the lavender sorts if the Phlox be white, pink, or even deep cerise. The Japanese Anemones are charming with them, though they long outlast the display of the Asters. These and the Boltonias are the only large perennials in bloom with the Asters and together they make almost the last of the great display that comes in the autumn, leaving the Aconites and the Chrysanthemums to make the final great burst of beauty before the winter. They may be planted now to bloom this year.

What other hardy plant will give such masses of bloom even after early frosts?

It is almost impossible to study any English book on herbaceous plantings without finding enthusiastic mention of Michaelmas Daisies. Good English people they seem—the Hon. Edith Gibbs, Mrs. Raynor, Robert Parker, Perry's Blue, Perry's Favorite, Ryecroft Purple and all the rest; but not all English for one finds also Heidenrose, Dornröschen, Herbstelfe and others from Germany. Underneath they are good Americans, for the most part, offspring of the gorgeous Wild Asters which glorify our meadows and open woodlands every fall.

But these children of European raising generally surpass the wildings in range of color and in form of bloom, bringing to the herbaceous border large masses of lavender and purple at a season of the year when yellows and oranges are otherwise likely to dominate.

Omitting the spring flowering forms, the long display of Michaelmas Daisies commences with the varieties of Aster amellus. This, like the spring-blooming Alpine species, throws up its flowers from a basal rosette of leaves. There are several flowers to each branch of the flower stalk, which blooms open successively so that the plants are in prime condition for a month, commencing about the third week in July. After the main crop of flowers has faded, some new shoots are made from the base.

Beauty of Ronsdorf was the first of these to open its large lavender flowers, but Perry's Favorite came very shortly after with its more perfectly formed flowers of a delicate pink color. These looked more pink than ever when a few Platycodons opened near by. Preciosa was the last to bloom with the smallest flowers and the deepest color—a real amethyst color.

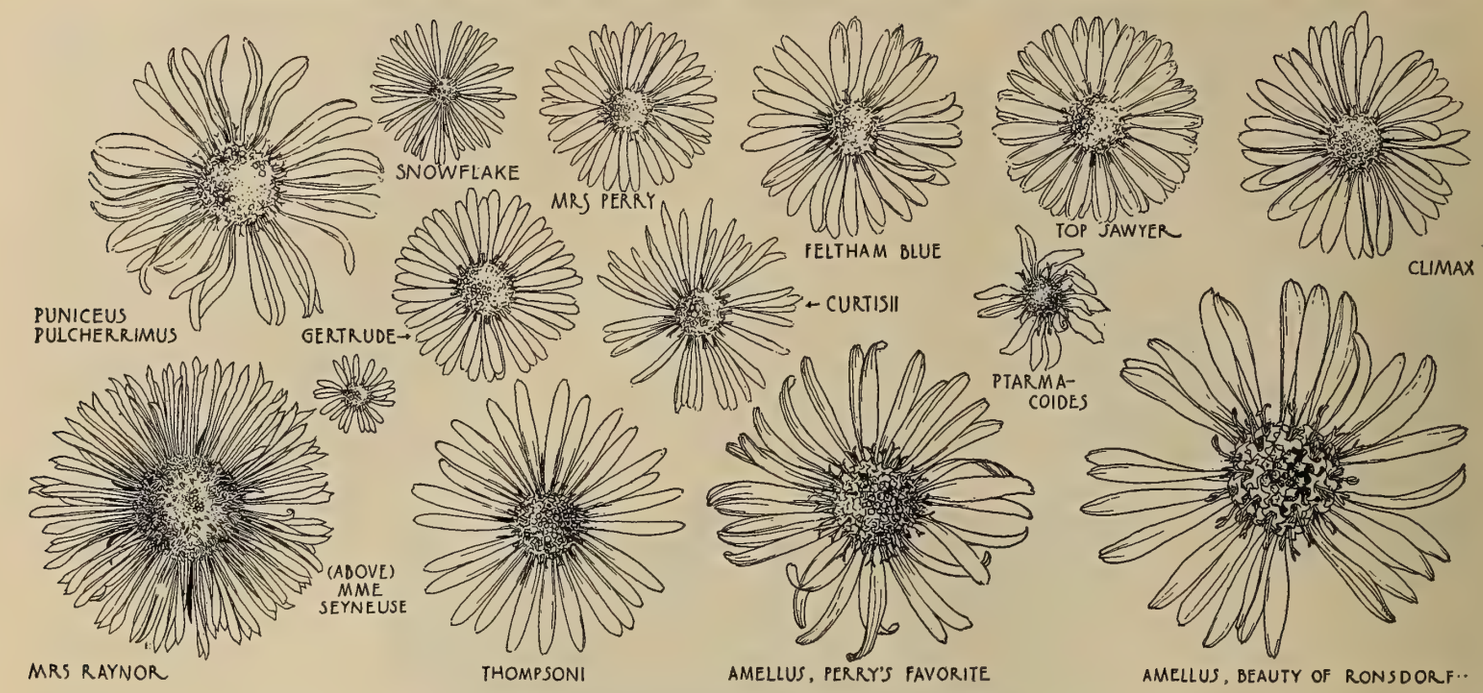
And together with these varieties, there bloomed Aster ptarmacoides and Aster Thompsoni. The former is a dwarf, about a foot in height, as are the amellus sorts of very slender and delicate growth, covered with small white flowers. These flowers seem particularly white because the disk-florets are not hidden by the reddish brown pappus that develops so rapidly in some. The latter is a dwarf plant with a very characteristic growth and exquisitely formed flowers of a pale lavender gray color. But, although the flowers are very lovely, they are not satisfactory, because they come only a few at a time through a very long period. My plant was in bloom for more than two months.

After these had passed the best bloom, there was a slight break in the procession that marched in my garden, filled only by a little one, called Gertrude, and by the large Aster puniceus var. pulcherrimus. The first of these has the general type of growth of the novi-belgii varieties, but is quite dwarf. The compact little bushes are covered with very charming flowers of a color which appears now a clear lavender, now a clouded pink, the color that marks many varieties and which, like the colors of the pallida Irises, or many of the French Lilacs, seems to become more intensely blue or pink according as its neighbors color.

Aster puniceus var. pulcherrimus is as robust of form and shape as Gertrude is delicate. It is even later than most Asters in developing its flowering stalks, a point which is of value, as it can be tucked in between Phloxes in the mixed border to

The bold, sturdy character of the New England Aster gives a welcome note in late fall. There are some good pinks and blues

The New York Aster and its many varieties give many tones of lavender and pink. The plants are compact growers and make low habited masses



Individual blooms of modern named Hardy Asters, exact size

take its place when the great burst of their bloom is over. Its flowers are large, with narrow ray-florets of so pale a lavender that they tend to gray rather than to purple. They come, however, in great panicles so that the color is not uncertain—and the charm of the large inflorescence makes up for any roughness of growth.

By the time this is passing, the great host of the Asters is opening the terminal flowers and in but a few days the garden is a mass of lavender and purplish crimson. The white varieties produce the greatest profusion of bloom, but are less attractive than most because the disc-florets are soon discolored by the reddish brown pappus. Snowflake and White Queen are almost identical save that Snowflake is a few days earlier and perhaps a foot shorter. Madonna and Boule de Niege are very similar with broader ray-florets as compared to Snowflake and White Queen. Heidenrose comes nearest with white flowers flushed with pink in the centre. Like this in general style is Herbstelfe, but the pink flush is less pronounced and the foliage of the plant is remarkably poor, perishing early in the summer and leaving the stems bare or covered with blackened leaves. Next in color might come either pinks or lavenders, so delicate is the gradation.

Aster puniceus var. pulcherrimus is even later than most Asters in developing flower stalks. Pale lavender

An improved form of Mrs. Perry is the only pink variety of the New York Aster (A. novi-belgii) form that has bloomed for me. It is a charming one of medium growth with clear pink flowers similar in color to the reverse side of a La France Rose. St. Egwin has declined to bloom for me, but is described as a very desirable pink.

Turning the lavenders, the varieties are many and very similar; a mass of them tones down into a soft lavender cloud provided no varieties of the New England Aster (A. novae-angliae) are introduced. Arranged in order of bloom, I had Curtisii, Beauty of Colwall, Top Sawyer, Climax, laevis Baldur, Robert Parker, W. Bowman, Saphir, amethystinus, laevis Calliope, Feltham Blue, formosissima, and grandiflorus.

Of these I consider Saphir, laevis Baldur and Curtisii quite useless. They are all poor in form of flowers and habit of growth. Beauty of Colwall is poor to my mind because it is double, which of course is considered by others a remarkable advantage. Of the others which are all charming, bearing flowers obviously different yet difficult of description, three stand out with marked distinction: these are Climax, Feltham Blue and grandiflora. Climax, which is very similar to Top Sawyer, has clear lavender flowers of good form, though not so symmetrical as those of the latter and bears them on great arching sprays that are admirable for cutting. Feltham Blue is of course not blue, but the color is very deep and intense. And grandiflorus, a good deep lavender, is remarkable for its late blooming. Coming with all these are the varieties of novae-angliae. These latter ones are much more rank in growth and bear flowers of greater intensity of color. Mrs. Raynor first appears with deep crimson flowers; sparingly at first but constantly until the entire head of the plant is covered. Then a week later comes novae-angliae rosea, almost identical, but taller. Within a few days or simultaneously the type appears, bearing its deep purple flowers and last Lil Fardell and Melpomene, the former a shade lighter than Mrs. Raynor, which is still in bloom, and the latter a shade lighter than the type of our common New England Aster. All of these forms are of intense color and strike a much more vigorous note than any of the New York sorts. Dornröschen did not bloom for me. It is described as silvery mauve.

The New England Aster stands as a sentinel in the late border, giving freely its wealth of flowers

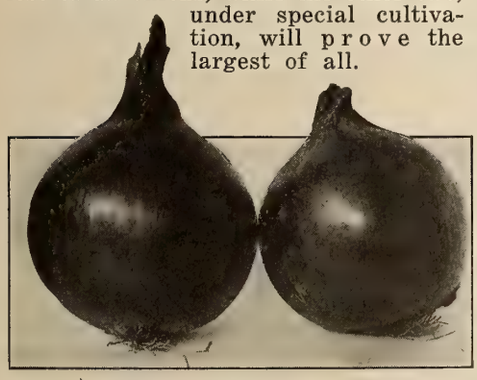
Onion Growing Simplified—ADOLPH KRUHM, New York

HOW TO HAVE ONIONS THAT ARE REALLY ONIONS IN FLAVOR AND SIZE—A CONCISE REPLY TO THE PERENNIAL QUESTION, "WHICH VARIETIES, AND WHY?"

FEW classes of vegetables are as willing to accommodate the planter as the onions. He may have them in quite a variety of colors, from early in August until the crop of the next year is ready to harvest. If he is careful in his selection, he may even choose the quality of the flesh to suit his own particular taste. And yet, easy as it is to grow onions such as are described and illustrated here, more people fail, perhaps, with them, than with any other crop (excepting, of course, cauliflower and mushrooms!!).

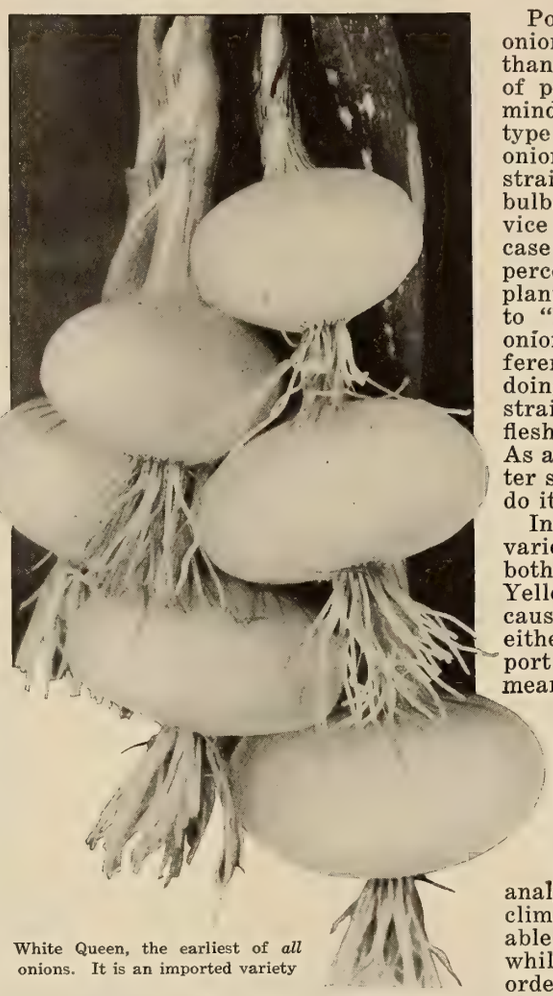
The principal reasons for this are found, perhaps, in the fact that amateurs will attempt to grow them in soil that is utterly unfit (hard, stony soil) and that the seedlings do not get the proper attention at a time when they need it most. No other crop is as delicate in the "baby" stage as onions; but after they once pass that crucial period in their development, no trouble will be experienced to secure a crop, if the soil is free of maggots.

Onions may be divided, according to their usefulness to the planter, into two broad classes: (1) the extra early foreign sorts; and (2) the later, but better keeping American onions. While the assortment of foreign sorts is quite as large as that of our native sorts, yet, in our choice of foreign sorts for the average home garden we need consider only three of them. The balance of foreign sorts are, as a rule, grown only for special purposes and therefore do not deserve consideration here. The reason why three foreign sorts are included is because one—the Queen or Barletta—is without question the earliest of *all* onions, while the other two, under special cultivation, will prove the largest of all.



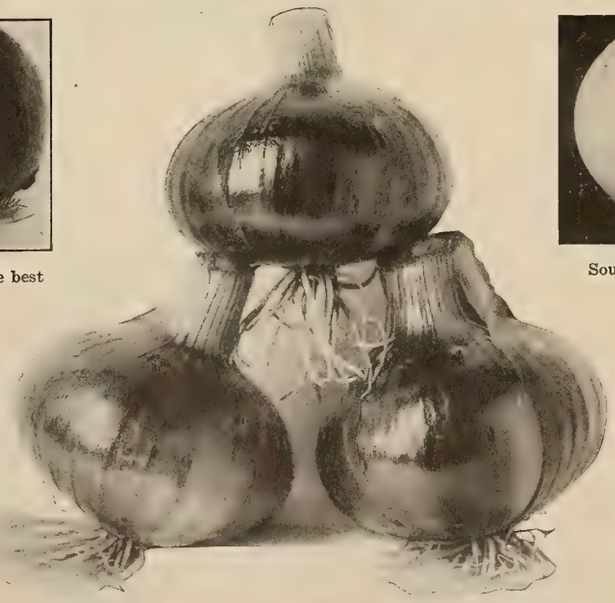
Southport Red Globe, the heaviest yielder and the best keeper

Judging the three classes of American onions as three units, it is safe to call the *white sorts* the mildest; the *yellow sorts* the most dependable; and the *red sorts* the strongest and latest, but the best keepers. Classifying them according to their shape, we find the *flat sorts to be generally earlier* than the globe and semi-globe shaped sorts. Taken as a whole, all American onions keep well except American



White Queen, the earliest of *all* onions. It is an imported variety

Grown Prizetakers and it seems that twenty-five years of acclimatization has not been able to put a greater solidity and hence better keeping qualities in this originally Spanish variety.



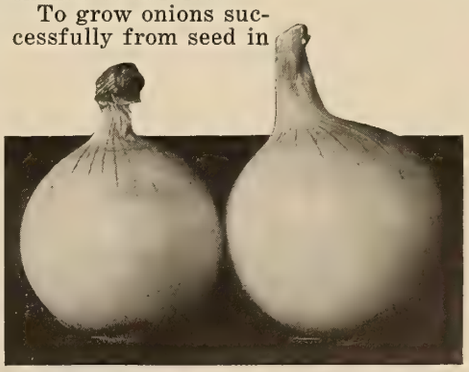
Red Wethersfield, three quarters its natural size. A meritorious red variety

Poor strains of seed are found among onions perhaps with more frequency than in anything else, and the question of price of seed should not enter the mind of the planter who wants true-to-type onions of proper qualities. Cheap onion seed is cheap either because the strain is full of "rogues"—off-colored bulbs, or flat bulbs in the globe type, or vice versa—or the seed is old, in which case you may look for an unusually high percentage of "thicknecks"—i. e., onion plants with a very thick stalk refusing to "bottom" or make a bulb. Again, onions adapt themselves quickly to different climatic and soil conditions. In doing so, minor characteristics of the strain such as color of skin, quality of flesh and firmness are often changed. As a rule, these changes are for the better since the variety is simply trying to do its best under new conditions.

In referring to the table of standard varieties, please note that I have marked both Ohio Yellow Globe and Michigan Yellow Globe as being superfluous, because generally they are too much like either Yellow Globe Danvers or Southport Yellow Globe. But that does not mean that Ohio Yellow Globe wouldn't be preferable for Ohio growers and Michigan Yellow Globe for the growers of that state.

With onions as well as with every other vegetable, it will pay the planter to do four things: First, "take stock" of varieties and strains available; second, to clearly analyze his wants; third, to see that climatic and soil conditions are favorable toward making an attempt worth while; and finally, to decide to *weed*, in order to give the cultivated crop a chance to survive.

To grow onions successfully from seed in



Southport White Globe, the handsomest of all American onions

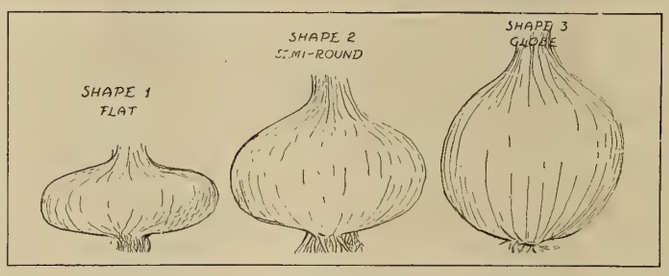
one season you must be willing to do a great deal of hand weeding and to cultivate freely with both hand hoe and wheel hoe. The development of the seedlings should not be retarded by weeds and since rich soil grows plenty of weeds equally with good onions, onion growing during the first few months develops largely into a battle between the man and the weeds.

Here is the programme that was pursued in connection with the

ONIONS OF SPECIAL MERIT——ALL SEEDS SOWN APRIL 25

VARIETY NAME	BULBS FULLY DEVELOP	SHAPE OF CLASS	DIAMETER INCHES		AVERAGE WEIGHT PER BULB (OUNCES)	AVERAGE YIELD IN POUNDS PER 15 FT. ROW	QUALITY OF FLESH	KEEPING QUALITIES	REMARKS
			CROSS SECTION	VERTICAL					
White Portugal	Aug. 14	II	2¼	2	4	12½	Coarse, dry, mild	Fair, use in fall and early winter	Earliest American white
Southport White Globe	Aug. 24	III	2¾	2¾	5½	17	Fine grained, juicy, mild	Good for early winter	Most beautiful and highest priced
Flat Yellow Danvers	Aug. 12	II	2½	2	4½	14	Fine grained, dry, strong	Excellent	Standard flat yellow
Yellow Globe	Aug. 20	III	2½	2½	6	18½	Fine grained, dry, strong	Excellent	Standard yellow globe
Southport Yellow Globe	Aug. 30	III	3	3	7½	23½	Fine grained, juicy, strong	Excellent	Latest and best yellow globe
Prizetaker	Sept. 10	III	3½	3	7	21	Fine grained, juicy, mild	Fair only; use quickly	Fancy salad sort
Red Wethersfield	Sept. 10	II	3¼	2¼	7½	23	Coarse, juicy, strong	Excellent	Standard red in West
Southport Red Globe	Sept. 10	III	2¾	2¾	7½	24	Coarse, juicy, strong	Excellent	Standard red in East
Australian Brown	Aug. 30	II	2¾	2	5½	18	Fine grained, dry, mild	Best of all in keeping	Varies in color. Will keep a year
White Queen	Aug. 1	I	2¼	1½	3	9	Coarse, juicy, mild	Poor, use quickly	For salads and pickling
Mam. Silver King	Aug. 15	I	2¾	1¾	5	17	Coarse, juicy, mild	Poor, use quickly	For salads and pickling
Gigantic Gibraltar	Aug. 14	III	3¼	3½	7½	23	Fine grained, juicy, mild	Good if handled with care	Fancy, fine for South

varieties suggested as the most dependable of all sorts (see table): Seeds were sown on April 25th. On May 10th the rows were weeded for the first time and thoroughly hand-hoed. On June 10th, the seedlings, which had made a rather slow growth due to cold weather, were "thinned" out to stand four inches apart in the row. At the same time wood ashes were applied at the rate of a large teacupful to every fifteen feet of row. After that, the onions were weeded every two or three weeks or as often as the weeds became evident.



THE STANDARD VARIETIES OF ONIONS

WHITE	YELLOW	RED	IMPORTED
†White Silverskin †Philadelphia Silverskin ‡ *White Portugal *Southport White Globe	†Yellow Strasburg *Flat Yellow Danvers *Yellow Globe Danvers ‡ †Ohio Yellow Globe †Michigan Yellow Globe ‡ *Southport Yellow Globe *Prizetaker	†Extra Early Red Flat †Early Rose *Red Wethersfield *Southport Red Globe *Australian Brown	*White Queen †White Barletta ‡ †White Pearl *Mammoth Silver King †White Bermuda †Red Bermuda †Ailsa Craig *Gigantic Gibraltar ‡ †Denia

† Superfluous ‡ Too much alike * Merit

Onions are heavy feeders. The fertility that goes into the weeds will not be available for the crop you want. In order to offset the loss of plant food due to weeds, three applications of a complete fertilizer were made between July 15th and end of August. While this proved a wonderful stimulus, it also lengthened the growing season, thus making all varieties later in maturity than they would have been under normal conditions. One fact was firmly impressed upon me in connection with onion growing and that is that all kinds do almost as well on poor soil under intensive cultivation as on rich soil under neglect among weeds.

Two excellent yellow varieties: left, Southport Yellow Globe; right, Yellow Globe Danvers

One of the best tools for working in the onion bed I found to be the Excelsior Weeder; it comes nearest to doing the work of a hand without the wear on the real thing; it stirs and aërates the soil as thoroughly as is needed to make the onions thrive, and in order to thrive onions need air in the soil quite as much as fertility.

Students of this report will perhaps be disappointed at the rather poor showing made by Mammoth Silver King, Prizetaker and Gigantic Gibraltar. The question will arise, why should these be grown at all when they do not show up any better than other white or yellow sorts of similar nature. The answer is: If you just intend to grow onions for home use, there is no use including these late mammoth sorts in your growing programme; but if you want to grow bulbs for either exhibition purposes, or, living in the South, you want to ship fancy onions to Northern markets, then you need them, because they will do what no other varieties can.

Prizetaker (left) and Gigantic Gibraltar (right), late mammoth sorts, grown principally for exhibition and commercial purposes

Any one can grow these large sorts to immense size if he (or she) be willing to start the seeds early in either hotbed or greenhouse, transplant the young seedlings several times and then set them out about May 1st in an exceptionally rich piece of ground. Treated in this fashion, bulbs weighing 1½ to 3 pounds have been grown of all three of the sorts mentioned. My reason for not including Ailsa Craig is that, all conditions being equal, it will not grow any larger than either Prizetaker or Gigantic Gibraltar and it is an even poorer keeping sort, being extremely juicy, rather coarse-grained and having a very delicate skin.

In sizing up the total yields recorded, please remember that the bulbs stood four inches apart in the row on soil that was far from being ideal onion soil. In the rich muck soils of Ohio, Indiana, and other Western states, I have seen four bulbs of six to seven ounces each grow on a space not larger than I gave each individual bulb in my trials. But there the onions would almost lie on top of the ground. They would "hang on" to the humus with eight and ten roots and expand just like a balloon in almost four weeks. On such soils one may expect yields of 800 to 1,000 bushels or even more per acre; but in clay soil of average fertility, such as is found in the average home garden, it would not be well to expect more than what is here recorded.

THE MONTH'S REMINDER

MAY, 1916

For reckoning dates, the latitude of New York City is generally taken as a standard. In applying the directions to other localities, allow six days' difference for every hundred miles of latitude

THIS is the month of many activities for every person who owns a small place. When transplanting, or flower bed making, or early spraying, or lawn mowing, or weeding doesn't keep one on the jump, some newly arrived bug will. First among the duties is eternal vigilance against weeds.

Then comes early planting, which means early flowers. All but the tenderer things can go in at once. And all, with a very few exceptions (such as Poppies, Portulaca, Lupins, and so forth), can either be planted where they are to mature or sown in a seed border and later transplanted. Transplanting has advantages: the seeds may be sown earlier, as a warm protected spot can be picked out; they can be watched and tended more carefully, as they are all together in one place; and a perfect stand of the best plants only can be secured when they are transplanted. The "seed bed" should be raised a few inches and topped with clean, light soil mixed with old compost. Make the rows four to six inches apart and mark each carefully. Most flower seeds are much smaller than vegetable seeds and should be barely covered from sight. Many complaints about poor germination of flower seed are due to too deep burial. When seeds are planted where they are to remain, sow with each kind just enough radish seed to mark their position.

Sure Way to Get Beautiful Flowers

THE various kinds of summer blooming bulbs, as Dahlias, Gladioli, and Cannas, offer the most certain way of having flowers during the longest season from planting now. Gladioli may be put in at any time from April until the latter part of June. Plant from an inch and a half to four inches deep or even more in very light soil. There are three ways of securing a succession of bloom—planting the bulbs at different depths, planting them in succession and planting different varieties which mature at different times. By combining these methods, two plantings will give flowers from summer until frost. Bulbs planted deep will not need support like those planted near the surface. A place sheltered from prevailing winds should be selected if possible. In planting bulbs of Dahlias and Cannas, do not make the mistake of putting in a whole clump of the varieties which you may have kept over yourself from the last season; one or two roots in a place will give better flowers.

An Unappreciated Opportunity

AS SOON as all danger from frost is over, all bedding plants from pots, such as Heliotrope, and Geraniums, may be set out. But the possibility of planting a garden now from pots is not limited to these things ordinarily bought at your local florists. Potted Roses may still be safely set out even if they are all ready to bloom. Many vines and hardy perennials will flower freely from potted plants set out now.

Get Out Your Rubber Coat. If you want perfect fruit next fall, you must keep your eyes open now and be ready to spray at just the right moment. The sprays for the various fruit trees must be given just before the blossoms open and just after they fall. Spray Roses now with a combination spray to be effective against both mildew insects. Also keep an eye on your currant and gooseberry bushes for the first sign of the currant worm. Arsenate of lead will fix him.

Don't Let Them Burn Up

ANY plants left in the greenhouse and the coldframe must be given care in the way of watering and ventilation. If you are neglectful, a few hours of bright sun may work havoc with some of your choicest plants. In the frames tomatoes, eggplants and so forth, and the tenderer flowers, are still being hardened off preparatory to being set out as soon as this month's frost is over. Be careful not to get caught by a sudden late, frosty night. Keep plenty of old cloth covered sash, old boards, blankets or something else similar on hand, so that everything to be guarded can be covered up on short notice.

What was the condition of your frames last year? Can't you do better this season? Did you make real use of them or were your frames empty except for weeds, or full of maturing crops of tomatoes, cucumbers, melons, peppers and eggplants, all a week or two in advance of those in the garden? Clear a small space in the middle of each frame now and set out the best plants you have of these things, even if it is only two or three of a kind, for extra early results. All of the other things will be out of the way in the course of a few weeks, and these permanent things can have the entire space.

Plant this Month

¶ **Vegetables, under glass,** *To remain:* tomatoes, cucumbers, melons, especially English forcing varieties of cucumbers and melons.

For transplanting (in Northern states), lima and pole beans, corn, cucumbers, gourds, melons, okra, and squash.

¶ **Vegetables, out doors,** *After danger from frost:* beans, lima beans, corn, cucumbers, melons, martynia, okra, pumpkins, squash; later, from frames, plants of beans, corn, cucumber, eggplant, peppers, melons, squash, and tomato; sucession crops of, beets, carrots, cress, kohlrabi, leek, lettuce, peas, late potatoes, mustard, radish, spinach, turnips, Witloof chicory.

In seed-bed for transplanting later: Brussels sprouts, cabbage, cauliflower, celery (late), kale, leek, tomatoes (for green fruit). Also asparagus, French artichoke, rhubarb, and sea-kale, for *plants.*

¶ **Flowers, under glass,** *For plants for fall and winter bloom:* Antirrhinum, Begonia, Daisy, Fuchsia, Geranium, Heliotrope, Ice-plant, Lantana, Lemon Verbena, Petunia, Streptocarpus.

¶ **Flowers, out doors,** *From seed:* annuals and tender biennials and perennials, such as African Daisy, Ageratum, Alyssum, Antirrhinum, Asters, Balsam, Calendula, Candytuft, Castor-bean, Celosia, Cockscomb, Ornamental Corn, Cosmos, Dianthus, Gypsophila, Japanese Hop (Humulus), Ipomoea, Larkspur (annual), Lobelia, Marigold, Mignonette, Morning-glory, Myosotis, Nasturtium, Nicotiana, Pansy, Petunia, Poppy, Salpiglossis, Stock, Sunflower, Verbena, Zinnia, and many others.

Plants: Abutilon, Ageratum, Alternanthera, Alyssum, Aster, Begonia, Coleus, Geranium, Heliotrope, Lobelia, Petunia, Phlox, Drummundi, Salvia, Verbena, Vinca, Cobea Scandens, Moonflower, Humulus, Kudzu-vine, German Ivy.

Bulbs: Anemone, Begonia (tuberous), Caladium, Calla, Canna, Dahlia, Gladiolus, Tuberose, Zephyranthes; also Apios (tuberous rooted Wisteria), Emerald vine, Madeira vine, Cinnamon vine.

Don't Be Afraid To Bury Them Alive

IN CASE of sudden late frosts, there will be some plants in the open which will need protection as well as those still in the frames—early potatoes, early peas, and your first planting of beans may be protected if you provide a covering for them by running the wheelhoe with the hillers on over them when a frost threatens, covering leaves and all with the light, loose soil thrown up. After all danger is over, if they have not already shot up through this light covering, it can be shaken gently off with a dull pronged fork. A better method, however, where possible, is to use some of the glass plant protectors which may now be cheaply had. These not only provide protection from frost but promote rapid growth during the day. Where irrigation is available, that also can be used for frost protection.

BEFORE THE END OF THE MONTH

WHEN your first plantings of beets, carrots, lettuce, etc., are approaching maturity, do not neglect to make a second sowing for succession. On the twenty-fifth of May, think of Thanksgiving. Start all late winter crops of cabbage, cauliflower, brussells sprouts, etc., about this time for transplanting in July to permanent positions.

Just after the second weeding, before the plants are again hoed or cultivated, is the best time to give the plants a light dressing of nitrate of soda. Available nitrogen is deficient in most soils until the ground gets thoroughly warmed up next month. A garden 50 x 100 ft. would require twenty-five to thirty-five pounds. It can be put broadcast or put along the drills, being careful not to touch the plants, and then covered with the soil.

The Tenderer Vegetables

IN DECIDING when to set out the tenderer things, such as plants of melons, lima beans, and cucumbers started in frames, or eggplants and peppers, don't be in too much of a hurry if the weather continues cold and unfavorable, even if danger of frost is presumably over. Even if they are not frost bitten, their growth will be so severely checked by uncongenial conditions, that they will be much slower in making a start than if you had kept them in the frame for several days more, waiting for the ground to really warm up before setting them out.

Treat your asparagus bed and your rhubarb bed to an extra feed. Work into the soil a good top dressing of high-grade fertilizer and in addition give an application of nitrate of soda. If these plants become impoverished now, it will mean not only a shorter season and a smaller yield for the balance of this year, but weaker plants for next spring.

With the advent of warmer days, insect activity will be renewed. The secret of success in dealing with them must always be "prompt action." Keep your sprayer cleaned, your powder dry, and your weather eye open. When in doubt, spray—or dust as the case may be.

Keeping Out Weeds

IF THE ground is kept constantly stirred, weeds cannot grow, but how is it possible to cultivate carrots or onions before they come up? It is an excellent plan to sow "marker" crops of radish or turnips with things of this kind. These will come up in a few days and mark the rows. Where a seed drill is used, the rows are left plainly marked by the roller. Then five to seven days after planting, go over all with the wheel hoe, using the "onion hoes." Just after the seeds sown have sprouted, but when they have not yet got to the surface of the ground, go over the rows themselves with a fine-tooth steel rake, and thousands of weeds will be destroyed which would otherwise have to be gathered by hand. This also loosens the surface soil, and remember that many a "poor stand" is due not to the fact that the seed failed to germinate but that it could not push through the layer of hard soil.

When the radishes or turnips come into sight, go over them again. If you have a double wheel hoe, straddle the row, and set the hoes to shave as close as possible without cutting out the plants, *when working slowly.* Do not be tempted to put them a little farther apart so that you can do the work faster.

Give the first cultivation with the wheel hoe just as soon as the plants in the row can be plainly seen. As soon as the little plants are all up, give the first hand weeding. If this can be done as soon after a rain as the ground is dry enough to be worked comfortably, so much the easier. A small hand weeder will be found most convenient for this work. As soon as the hand weeding is done, use the wheel hoe again, with the cultivator teeth set to work the soil quite deep.

Making the Best of It—STEPHEN F. HAMBLIN, Massachusetts

III. What Can Be Done in a Stagnant Marsh

SOMETIMES a stretch of swampy ground, fed perhaps by springs, with tufts of rushes and small pools of water, reaches into the area included in the lawn and garden. As it appears weedy all the year there comes a strong inclination to the garden builder to "improve" it.

When possible, the logical thing to do is to drain it, add a layer of good soil, and sow it to grass, and plant moisture-loving shrubs and tall herbs. Perhaps the area can be filled and raised two feet or more; but if the soil is springy it will settle too unevenly to make good lawn. Possibly you will try to dig it deeper and make a lily pond; but if there is not sufficient fall for the water it will remain a stagnant mud-hole, and no plants will hide its bad odor and its mosquitos.

It may be that the wisest thing is to let the soil and water surface remain as nature made them, and by replacing the weedy growths and some of the rushes by flowering plants give it something of the refined effect of the lawn area. First of all, the less the soil is overturned in the operation of planting the better the effect will be; if you turn it all over you will have plain mud for a year or more, until the grasses have covered the soil surface again.

Some marshes are warm in summer and the soil is a soft black peaty ooze; the other extreme is cold spring water on a clay bed that offers little roothold for plants. Each has a distinct flora, but I shall try to suggest plants that will grow in either site; but every planting is an experiment, for plants will behave queerly when set in new soils. You may not even be able to get Cattail to thrive, though more than likely it is there already.

The border shrubbery consists of Liquidambar, varieties of Sambucus and Cornus, with Cattails and Pontederia on the water edge

We must suppose that the marsh is open to the sun all day long, and that the pools of water remain all summer, or at least do not dry away wholly. If trees are lacking, a group of Red Maples (Acer rubrum) may be set wherever you wish to break the skyline; they may grow slowly, but they will live. Pussy Willow (Salix discolor) will grow nearly as well as on the firmer ground.

For shrubs, try Common Elder (Sambucus canadensis) wherever the swamp grasses grow; in the pools of open water anchor large plants of Sweet Gale (Myrica gale) and Buttonbush (Cephalanthus occidentalis). They may take kindly to their new home, and may refuse altogether. With the Elder you may have luck with the Swamp Rose (Rosa carolina), Red Osier (Cornus stolonifera), Blueberry, Honeysuckle (Lonicera caerulea), and several of the Heaths, as Rhodora (Rhododendron canadense), Leatherleaf (Chamaedaphne calyculata), and Bog Rosemary (Andromeda glaucophylla) on the hummocks in the marsh. Of course near the edge of the marsh many of the Willows, Dogwoods, Viburnums, Alders, and other common shrubs will grow readily; it will be easy to grow so many that the herbs will be crowded out.

For bloom in early spring nothing can surpass a goodly colony of our Marsh Marigold (Caltha palustris). It grows equally well whether the soil be peat or clay, provided the supply of water is constant the year through. Don't plant a half-dozen, but hundreds of them in big colonies, and then you will understand its Indian name, "It-opens-the-swamps." Though difficult to find in midsummer, as the leaves have entirely died away, it should be planted in summer or early autumn to give it a fair start for the spring. This may be followed by the yellow of Buttercups, particularly the tall Ranunculus septentrionalis and the creeping R. repens.

If the soil is peaty the summer bloom may begin with masses of the Buckbean (Menyanthes trifoliata) in white spikes in May; later the Arrowhead (Sagittaria latifolia), in its slender or its very robust forms, will be somewhat similar, while spikes of Cardinal flower (Lobelia cardinalis) flame above it.

If the soil has more gravel or clay than black ooze it will suit several species of Iris. Our two native species, the Larger Blue Flag (Iris versicolor) and the Slender Blue Flag (I. prismatica) can be brought in from other marshy meadows, but for masses of blue in June you can rely on the Siberian Flag (I. sibirica). Of course it grows in the border, and among the shrubs along the drive, but it thrives even better out in the marsh where the soil is so wet that you must wear rubber boots when planting it. There is a white form, and the dwarfer later species (I. sanguinea), commonly known as variety orientalis, gives deep blue about a week later. There is a white form of this called Snow Queen. For yellow the Yellow Flag of Europe (I. Pseudacorus) is the best species in the marsh. The foliage of these stands all summer, and in August the White Turtle-head (Chelone glabra) will lift its curious inflated flowers above it.

In midsummer the marsh can be gay with big pink Swamp Rose Mallow (Hibiscus Moscheutos) that you know as a border plant, but it dearly loves to stand with its feet in the water, and so does the Crimson-eye Mallow (H. oculiroseus) which for color effect is white. I wonder if the new Marvel Mallows wouldn't like to go back to the swamps from which their parents came?

For autumn bloom we depend upon the Composites, the flat purple heads of Joe-pye-weed (Eupatorium purpureum) and the white tops of the sister Boneset (E. perfoliatum). The marsh is too wet for Goldenrods, but several Asters grow practically in the water. The flat white heads of Aster umbellatus sway with Joe-pye, and the lavender stars of Aster puniceus, every bit as fine as the Michaelmas Daisies of the garden, complete the quartet in open glades in many Northern swamps.

For green foliage all summer, besides the rushes and grasses that are sure to be there, it is always good policy to have Cattails, either the common sort (Typha latifolia) or the Slender Cattail (T. angustifolia) and if they take kindly to the place you will soon have enough of them. Tread the roots into the water with your rubber boots. Foliage in early spring will be afforded by Skunk Cabbage (Symplocarpus foetidus) and False Hellebore (Veratrum viride). They have enormous root systems; set them with the spade at the water's edge in midsummer. Among the ferns the Royal Fern (Osmunda regalis) is the most truly aquatic; it often floats around in swamps on little islands of its own making. And with it several of the Pitcher-plants will be happy; the showiest of them all is the great Georgia Trumpets (Sarracenia flava), whose tall yellow trumpet leaves are more effective than any flowers. Rushes and sedges are of course already there; the most ornamental is the Giant Bulrush (Scirpus validus) whose seed heads in autumn are raised some five feet above the hummocks in the marsh.

By judicious planting, therefore, a hitherto unattractive bit of marsh may be made to clothe itself in pleasing colors from early spring to late fall.

Base planting of flowers that is entirely out of scale with the house itself. It doesn't fit and is temporary

Simple massing of shrubs giving permanency and a background for the use of flowers in front if desired

Practical Plans for the Home Grounds—RUTH DEAN, Landscape Architect

X. Foundation Planting for the Suburban Lot

AT THE other extreme from the house whose base is buried in evergreens, stands the house with nothing but flowers about its foundation, a planting even more faulty in its way than the evergreens. The purpose of any planting about the base is to tie the house to its surroundings, to give it a look of fitting into the landscape, and of belonging to the place where it stands.

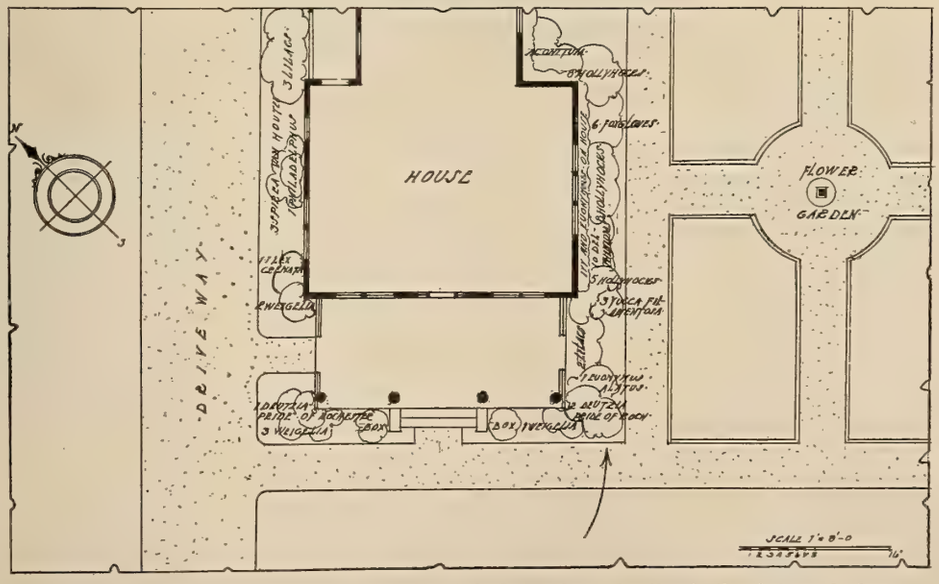
In order to accomplish this result, whatever is planted should be in scale with the house and should give an impression of strength and permanence. What could be less enduring in appearance, less substantial, less lasting for such a purpose than flowers? Their inadequacy as a base planting is patent, and, aside from the fact that they are out of scale with the house, and are too frail in character to perform their duty, they disappear entirely for six months of the year and leave the house with no planting at all to soften the harsh line of its joining with the grass.

The above photograph to the left illustrates well the inadequacy of flowers used alone as a base planting. They crouch like a tiny frill of lace around a giant's neck, when what he needs to complete his costume is a large fur cape. Among shrubs or against a background of evergreen vines they may be used to much better advantage than alone. But care should be taken to choose the tall, strong-growing kinds, such as Yuccas, Hollyhocks, Foxgloves, and Echinops, rather than such small dainty sorts as Pinks, Pansies, Sweet Alyssum; Forget-me-nots, which hug the ground.

A successful combination of the house and garden. Vines on trellises with tall perennials are used

To the decoration of the garden side of a house they are sometimes very adaptable, for here less formality is necessary than on a street entrance side, and the flowers are in a more appropriate setting. A very good illustration of their successful use at the foundation of a house is shown in the picture of Mr. Aymar Embury's house, with the supplementary plan. Here the house wall itself is softened by a covering of trellis, which supports Ivy and the twisted stems of Wisteria, carrying their green leaves up to a line which would ordinarily be furnished by shrubs or trees. These vines, in fact, act as would a background of shrubs, and the flowers which are planted in front are big sturdy ones which, together with the vines, give the house an air of masquerading as a garden wall. Without the Ivy to make a green background for the flowers, or shrubs to take its place, the flowers would lose all their charm, for they need not only a strong solid mass of foliage to hold them together and keep them from standing out as individual flowers, thus losing their scale in relation to the house, but something strong and permanent in habit, to supplement their short flowering season and act as foundation planting after they are gone.

Perhaps the surest road to happiness in foundation planting is to live up to one's mental picture of the house after it has been appropriately "tied to the landscape."



The right side of this plan is the garden side of the house shown fronting in the photograph above

Pin-Money Crops for the Home Gardener—F. F. ROCKWELL

V. Profits from Plants and Pots

IN MOST suburban sections, and small cities and towns, a great number of vegetable and bedding plants and the common hardy perennials are used each spring. In some places this demand is well cared for by local florists or market gardeners, but in the great majority of cases a limited output of these things, of superior quality, can readily be disposed of to one's friends and neighbors, who are proud of their gardens, but lack the facilities to produce things for themselves.

This line of work has at least two particularly decided advantages as compared to the other "pin-money crops" which have already been discussed in this series. Much less space is required—it is a way to make money from the *very* small garden. Second, the market, or demand, has not a fixed maximum, as is the case with vegetables; it is largely what may be termed a *potential* market, depending upon the enthusiasm which the quality of your plants is capable of arousing. In other words, where you might not possibly be able to sell your neighbor a second bushel of onions, because he would have no use for it; he will almost always have use for a few more plants. And a large part of your "stock in trade" may be grown for another season, and any surplus can be used in beautifying your own gardens and ground.

THERE is no "pin-money" stunt that is the best for all conditions. Vegetable and flower plants for spring sales can be produced in a very small space, but there must be more invested in equipment, such as glass, pots, tools, stock plants, flats, etc., than would be required for ordinary garden crops. More constant attention also will be demanded. And as is always the case where a number of things is grown, instead of one or two, more general knowledge and skill in keeping everything going smoothly and attended to on time will be required. Another disadvantage is that growing bedding plants and perennials is an all-year round business.

BY THIS time the reader may be wondering, if he did not at the beginning, why THE GARDEN MAGAZINE should wait until the present time to talk about growing plants that are to be sold in May. There is method in the madness! This plant growing business is not a make-money-quick plan. You should not attempt it at all unless you *mean business*, and if you do you will want to take your time and go at it *right*. To give yourself the greatest chance of success, you should start *now* for next spring. By so doing you can work up a stock of the newest and best things for practically nothing. And, furthermore, this is just the time of the year for you to notice the plants in favor in your vicinity.

Note carefully who among your neighbors and possible customers are first to get their gardens started, and what their hobbies are. There is a further purpose in this general preliminary survey. This plant growing proposition is a good deal more of a "business" than the things which have been mentioned heretofore, and one should make very sure of one's ground before starting out in it. There are several factors, any one of which, if not favorable, may well mean that success cannot reasonably be expected. Among them are your market, your experience, your time, your equipment. *After* you have looked the ground over, stop and consider these things carefully before you decide definitely to go ahead.

THE MARKET, which is perhaps the most important, must remain more or less of an unknown quantity until your venture is actually under way. If it looks promising, discount your most conservative estimate by about fifty per cent., and go slowly at first. There is much more *profit* in not having enough plants for all your anxious customers the first season than in having some left over to throw out or to give away.

Experience. Unless you have already had success with the various things you expect to grow, or at least with most of them, it will be the part of wisdom to abandon for the present all idea of making profits from them. On the other hand, you need not feel that you need to wait until you become an expert, as your experience is more certain to grow with every season's work than your market is.

TIME. Pin-money crops are, of course, in the light in which we have been considering them, side line crops, to which one does not expect to give one's whole time. But the line of work described in this article will require at least a little time given each day. (including Sundays) during the fall, winter and spring months. Fifteen to twenty minutes a day will cover the "chores" that have to be done—watering, ventilating and so forth—in a small greenhouse or with a few frames; but this is a very small part of the work that has to be done. Plants to be cut back, seedlings to be started, cuttings to be started and re-potted or transplanted as often as necessary, fertilizer and soil to be prepared, pots and flats to be made and cleaned, and the hundred and one other things to be attended to during the year, even if your "infant industry" is taken up in a very small way, will use up several hours a week which cannot always be "bunched" on Saturdays. The biggest part of this work comes, too, when the days are not very long, from the middle of March to the middle of May, and just at this period the work cannot be delayed without disastrous results. If you have some one who can help you or a place in which you can work at evenings at a pinch, that, of course, makes a great difference. But be careful to go into the thing carefully enough and slowly so that you will not overestimate the amount you can accomplish.

EQUIPMENT. For this kind of work, of course, a greenhouse, even a very small one, often has decided advantages over the best of hotbeds and coldframes. Within the last few years the small, practical, inexpensive greenhouse has been very greatly improved, and a small investment will go very much farther in this line than it would have before, particularly as new "finished in the shop" methods of construction reduce the work necessary on one's own place to a very great extent. Just now, of course, due to the tremendous useless waste that accompanies the useless sacrifice of human life abroad, all metals are high. The market for all kinds of plants during the next few years will probably be better than for several seasons past. A very simple outfit will do to begin with. Possibly you already have a small conservatory or lean-to greenhouse, or even a small regular greenhouse, available. All kinds of vegetable plants can be grown in hotbeds and coldframes in the spring with no greenhouse at all, and all the commoner plants sold from pots can be put out into the frames early in the spring if you have even a small place to carry them through the winter, and to start the cuttings, indoors. A section of a bench a few feet square in the conservatory will start a large number of potted plants until they are ready to go into the hotbed in March.

The "glass" is the most important part of your equipment. That includes, of course, adequate heating, either artificially, or with manure and double-glass sash and mats for at least a part of the frames. The other things, such as the small tools, trowels, dibbers, a sieve, watering can, etc., are probably already on hand, in some shape or other. This part of your equipment can be added to and improved gradually, keeping always in mind that it pays to get well made, well known articles of good material, one at a time, rather than to get a complete assortment of cheap things that will rapidly go to pieces.

THE things you can grow, once you start in this line, are almost without number. But here, as in the growing of vegetables in small gardens for profit, it is best to have a specialty. Take one thing and make your supply the best that is to be had of it anywhere in town. Develop that until the market available for that particular thing is fully supplied. That will not only make a nucleus or a core for your little business, but will help you to sell other things as you add them to your list. It is not wise to attempt a complete assortment at once. There are three general classes, any one of which will probably give you plenty to do for the first season or two, particularly if you have your own garden and place to look out for in addition to your commercial undertakings; they are vegetable plants, so-called "bedding plants," and hardy or semi-hardy biennials or perennials; the possibility of growing all three of these eventually is that the number of your customers will probably be limited while each one of them may want plants of all three classes. The vegetable plants will probably include tomato, lettuce, cabbage, peppers, cauliflowers, beets and egg-plants, the amount of your sales for each will probably run in the order named. Extra quality tomato plants will always sell readily and usually at advanced prices. For potted tomato plants we get a dollar a dozen; and while ordinary plants, a dozen in a box, sell for a quarter or less, the best, with a good reputation behind them, will bring thirty-five or forty. And this is so with other things.

Of the bedding plants, the most used are Geraniums, Begonias, Salvias, Heliotropes, Verbenas, Petunias, Snapdragons, Pansies, Ageratums, Sweet Alyssums, Forget-me-nots and so forth for edging, borders, etc. Most of these are increased by cuttings. A few plants of the best varieties of each bought now or started from seed in the case of new expensive things and grown carefully in your own flower beds this summer will give you an abundant supply of materials for all the plants you can handle during next winter and spring. If you set out pansies now of the very choicest kind you can get and carefully save the seed, which is not difficult, that will give you a start toward a fine strain of your own.

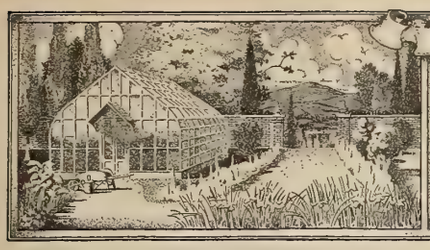
THE hardy perennials, unless you know them well yourself and feel confident that you will be able to dispose of such of them as you may intend to grow for sale, it will be well to leave out of your pin-money calculations for the first season or two, except that you can be working up a stock of them from seed or from individual plants of rare, new things. Remember that where one of your customers may buy a dozen or two of tomatoes and Geraniums and several dozen cabbage or Pansies every year, he is not likely to want more than a few perennials once in several years, even though you have extra choice things and can persuade him to take them. The more limited the number of your customers the less you will have to do with perennials. On the other hand, they will require little or no care through the winter, grow fast and may be considered as an extra by-product of specially fine varieties which you may want to grow for yourself and would not feel justified in growing unless they were to bring you some return. Moreover, perennials add to the permanent value as well as to the beauty of your own place as annual things do not.

Out of your list, to sum up, in getting a start:

Buy plants of Geranium, Ivy Geranium, Begonia, Coleus, Paris Daisy, Fuchsia, Heliotrope, Lemon Verbena, Pansy (for seed), Petunia (named varieties), Salvia, Verbena and Vinca; also of new named hardy perennials such as Asters, Chrysanthemum, Phlox, Delphinium, Tritoma, etc., which for the retail local trade should be largely of the best new varieties. Most of your customers will probably already have the better known sorts.

Buy roots or bulbs of Dahlia, Canna, Gladiolus, tuberous rooted Begonia, Oxalis, and the bulbous rooted summer plants, such as Cinnamon vine, etc.

Buy seeds of choice named varieties of Snapdragon, Begonia, Coleus, Heliotrope, Salvia, and of the very best perennials, from which to grow stock plants. (Seeds of Pansies, English Daisies and half-hardy biennials for coldframe plants are not sown until July or August.)



ODDS AND ENDS
FROM EVERYWHERE

Another Experience With Ismene

IT IS my custom to try each year some new plant or bulb, because now and then I find something among the seasen's novelties that is really worth while. It was with much interest, therefore, that I read an account of an experience with Ismene, published in the January, 1916, GARDEN MAGAZINE, because several years ago I bought a bulb of Ismene calthina, sometimes called Peruvian or Sea Daffodil. I had never seen one and did not know what the flower would be like.

The bulb was planted in a pot of light, rich soil composed of equal parts of turfy loam, leafmold and sand (similar to the soil I use for Amaryllis), lightly watered and kept in a warm place. The sword-shaped leaves soon appeared and the pot was placed in the sunniest window, where the growth was so rapid water had to be given freely. In just five weeks from planting the first blossoms appeared—from three to seven large, pure white, fragrant blossoms, borne, like an Amaryllis, on a strong stem from twelve to fifteen inches high. The individual flower is composed of six narrow, reflexed petals, like a Lily, with a Daffodil-like trumpet, deeply cut and flaring, with serrated edges, with a distinct greenish shade in the throat. The stamens are very prominent and ornamental. Each cluster is a bouquet in itself, and lasts a long time both when cut and on the plant. The leaves are long, arching and strap-shaped.

After flowering the bulb soon completes its growth; the foliage turns yellow and the bulb should be gradually dried off. As it is a tender summer bloomer, the bulbs may be planted the first of June in northern New York, after all possible danger from frost has passed, and treated like a Gladiolus—taken up in the fall and stored in a warm place over winter. The bulbs multiply rapidly.

Plattsburg, N. Y. MRS. E. E. TRUMBULL.

Invisible Peony Support

A VERY sightly almost invisible Peony support can be made from woven wire fencing. So-called woven wire may be had in which the wires are welded on to one another. A piece of this fencing, cut just high enough and long enough to encircle the plant, makes a support which, when painted green, is never noticed by an observer unless his attention is directed to it. In cutting the fencing the vertical wires

should be allowed to extend beyond the lowest horizontal wire as long as may be, for these thrust into the ground, hold the support firmly in place. The two vertical wires that meet in making the circular enclosure are to be tied together with string or wire.

Such supports will last for years and in rigidity are far ahead of anything else that can be devised. Any woven wire fencing will serve, though the above mentioned type makes the least obtrusive support.

No. Dakota. C. L. MILLER.

Japanese Anemones

I NOTICED in a recent issue of THE GARDEN MAGAZINE that the matter of growing Japanese Anemones successfully was discussed. As I have been much interested in establishing some of these beautiful flowers in my garden and have attempted them at various times in different places and with different soils, without success, I would be glad to have you open the matter for discussion in your valued magazine as to the exact conditions under which they may be grown. It seems to be an established fact that to be successful they require a moist, well drained soil, not too light or sandy, and some protection during the winter.

Some years ago my interest in these beautiful flowers was excited by seeing a large vase of them at a friend's house and was told that

The Peruvian or Sea Daffodil looks like a Lily with a Daffodil-like trumpet. Pure white, fragrant

a neighbor was growing a large bed of them that was the envy of the town. This was at Cherry Valley, N. Y., in rich loam with limestone bottom, where they have temperatures of 25 to 30 degrees below zero, which would indicate that they are sufficiently hardy for growing in any of the northern states. I hope to keep at it until I can have success with them and would appreciate some general views of flower growers.

Loudonville, N. Y. EDW. W. LEAMING.

Fall Planting of Gladiolus Bulblets

IN THE spring of 1914 I planted some seed of Burpee's Praecox Gladiolus. Transplanting probably accounts for their not blooming the first year, as they were expected to do. Some of the tops died down before I took up the bulblets in the fall. The following summer I was surprised to find that the bulblets which had been in the ground all winter without any special protection came up and bloomed.

Last summer I planted several hundred bulblets without a preparatory soaking. We had four or five weeks of dry weather immediately afterward, and but few came up. I am wondering if those that failed to appear last year will come up this summer.

I saved seed from my own flowers—the seedlings and also some named varieties — and planted a few of them just after ripening as an experiment. Of course, the tiny plantlets did not get beyond the babyhood stage, for the seed was put in from August 26 to September 18. I shall watch for their reappearing this spring and if they begin life anew it will set at rest my doubts as to the advisability of leaving bulblets in the ground through the winter. Full grown bulbs may require different treatment.

I am a newly-fledged Gladiolus enthusiast. Their period of bloom is so short that, taking the planting and harvesting into account, they have never seemed worth while. But then I was a stranger to the new varieties and my trial of them last summer was enough to convert me. They will succeed with less care than almost anything else one could name; and by planting at intervals of ten days or two weeks a succession of bloom is assured throughout the season.

Maryland. SARAH E. GIBSON.

The Melon Aphid

THE melon louse is a form of aphid doing much damage in some seasons to the musk and other melons. It can be successfully held in check by spraying the vines immediately upon the first appearance of the insect with Black Leaf 40, one part in 1,000 parts of water. Where there is a bad infestation and the grower is doubly anxious to do a thorough job, double this strength can be used. It requires about 200 gallons of material to spray an acre. At this rate it costs $2.50 an acre for material when used at 1 to 1,000.

Penn. HAROLD CLARKE.

A Comparative Novelty—Citron Melon

IN THE corner of your garden that is being devoted this year to "different" things be sure to have two or three hills of citron melon for preserving this fall.

Plant the seeds about the same time as you would those of watermelon—any time from May 20th to June 1st—in rich, well drained soil. Later on thin them out, leaving but three plants to a hill.

The citron melon is about one-third as large as an ordinary sized watermelon, and is almost globe-shaped. It is quite free from insect attacks. The fruit is gathered before frost and kept where it is dry and above freezing. In preserving, use only the fleshy part next to the rind, rejecting the rind.

New Jersey. M. ROBERTS CONOVER.

Dahlia Growing in Connecticut

HERE in the interior of Connecticut Dahlias are very unsatisfactory, and only in the later days of September, when the nights are cool, do they begin to bloom to any extent; and Jack Frost nips them when they are doing their best. Not so along the seashore, where the moist air from the salt water seems to make them thrive.

Dahlias are a fall flower, and many make the mistake of planting too early; the plants will show buds in the heat of July, which blasts the bud shoots and stunts the plants, causing them to throw out numerous small shoots all the way down the stalk and no more buds. White flies also bother them; many times these are not noticed unless one shakes the plants, which disturbs the flies and they can be seen flying among the leaves. Use a hose with a powerful spray nozzle, and drive the flies out, killing many by the force of the fine spray.

Plant the bulbs no earlier than June 1 up to June 20 or even later; then the bud shoots will not form until the hottest weather is over and will, therefore, not be stunted by it. The tubers should not be planted less than two and a half feet apart, four feet being the better distance. When the buds first begin to show, take a tablespoonful of nitrate of soda and place in a small indentation in the ground not less than six or eight inches from the stalk, covering over with soil. This will start them growing finely. Do this just previous to a rain, so that the soda will be dissolved more quickly.

While I have had a certain degree of success with Dahlias, I have found much more satisfaction in the culture of Gladiolus. One is sure of good returns in blooms and a great many can be grown in a very small place. Last summer I had more than 200 varieties, the pick of 150,000 hybridized seedlings, which occupied my time after my day's work in a busy newspaper office, and a great delight and source of recreation they afforded me.

Hartford, Conn. J. MORTIMER ADAMS.

Preparation of Soil for Dahlias

THE question is frequently asked if Dahlias can be grown successfully on the same ground year after year. I have grown them on the same spot for fifteen years with as good success with last year's crop as the first. Care has been taken, in this case, to supply the soil with plenty of fertilizer each year to retain its fertility. If grass land is to be used in which to plant the Dahlias, it is much better to plow or spade it in the fall, turning under the sod. (Do not knock out the turf and throw it away; turn it under deeply and leave it to decay and lighten up the soil.)

Freezing and thawing in the winter months will leave a wonderful effect on the virtue of the soil for Dahlia culture. However, the work of breaking up new soil may be satisfactorily accomplished in the spring for use the same season, if attended to as soon as the frost is sufficiently out of the ground to admit plowing, which should be deep, say eight to ten inches.

If the Dahlia garden is small and is to be spaded, spread over the surface a good coating of suitable manure of any kind (cattle preferred) and spade deeply, turning under the fertilizer and sod as much as possible. Let the soil remain in this condition until ready to set the Dahlias. Then another light coating of fine fertilizer may be spread over the surface and raked in, smoothing the ground over at the same time. Then with a spade or shovel make a hole to receive the tuber—a long, narrow receptacle, 15 to 18 inches long, about 6 inches wide and 6 inches deep. Lay the tuber flat in this excavation and at each end of the hole deposit one-half pint of fertilizer (sheep manure) taking care that the fertilizer is not less than 4 to 6 inches from the bulb. Then cover both bulb and fertilizer 3 or 4 inches deep. This method keeps the strong fertilizer away from the tender roots of the Dahlias until they become harder and the fertilizer has become more or less assimilated with the soil. Fill in around the plant as it matures, but always leave a basin-shaped place around it to retain water.

If a cutting or plant is to be set out, the same method of fertilizing should be pursued, but the plants need not be set more than 4 or 5 inches deep.

Rhode Island. GEORGE L. STILLMAN.

Isn't this a monster Lilac? Thirty-eight years old, 18 feet high, 100 feet around!

Success With Dahlias

IN ALL my twenty-five years' experience with Dahlias they have never failed to bloom splendidly. Some Dahlias of course bloom more than others and some are very late coming into bloom.

I think they bloom better if planted in a vegetable garden where they can be plowed and hoed *regularly*. Where they can't be plowed they should be the more frequently hoed.

Pinching off the tops puts back the blooming period. A lack of sunshine, or rain will keep them back.

One summer it was very dry here, with no rain from the middle of March until August 1st. By keeping the soil stirred I kept my dahlias growing some and looking tolerably fresh, but had no bloom. When the showers began they seemed to burst into bloom all at once, and the bloom was the finest I have ever had.

I have set out rooted plants as late as September 1st; they were in bloom October 15th. Alternate rain and sunshine just suited them; they outgrew some plants set out in July which had been dwarfed by dry weather. They made magnificent bloom, but an early frost on November 10th cut them off. Have had them in bloom December 1st. Two feet apart each way is the closest I have ever planted, and then I left just one stalk in hill, tied it up to a good stake and trimmed out part of the branches. Three feet is close enough for those varieties that branch a good deal and make heavy tops.

Dahlias like a soil that is broken deep. Three feet is none too deep. I had a splendid bed of cactus dahlias one summer that grew and bloomed right through an excessive dry spell; they were planted where I had had a four-foot "pit" filled up with leaf-mold and grass sod in the fall. They will grow and bloom in any kind of soil that *has not been soured by water standing on it*. They will not grow where the soil is sour. Stiff, heavy clay should be loosened with leafmold, leached ashes, or sand. Light, sandy soil should have added to it plenty of well rotted stable manure.

I have heard it said that too rich soil keeps them from blooming, but I do not find it so. The very rich soil produces thicker, taller stalks and perhaps larger leaves and more and better flowers. In *very* poor soil they will not bloom, I have learned from experience. I have counted thirty blooms on a stalk at one time and sometimes twice that number.

Old Fort, N. C. MRS. H. A. TATE.

A Gigantic Lilac Bush

THE largest Lilac bush I have ever seen and which I believe is the largest in the country, is in our backyard. It was planted by my father about thirty-eight years ago and measures more than one hundred feet in circumference and eighteen feet in height. The bush is quite famous, and every season, when it is in bloom, many people come to see it. I wonder if any of THE GARDEN MAGAZINE readers know of a larger bush.

Lincoln, Neb. HELEN H. TUTTLE.

Do Cucumbers, Melons and Squashes Mix?

THIS question is a true perennial; it comes up every year. We are in receipt of a note from an experienced seedsman who remarks that "the same old question, 'Do melons and cukes, etc., mix?' appearing in my regular correspondence three times yesterday, induces me to dictate the following:

"No question is more often asked the seedsman during the spring months than the above. Although they all belong to the family Cucurbitaceae—and this also includes pumpkins and gourds—yet they are distinct species, *and I have never known of a single case of intermixing*. In fact noted hybridists have spent much time in trying to effect crosses between the various species by careful hand fertilization, but to no purpose.

"But let us suppose that cucumbers and muskmelons grown together in the same patch might, through the agency of bees or other insects, intercross; what would be the result? It could not possibly affect the quality of the fruit; the change could only take place in the *seed*, and the result would not be noticeable until that seed was again planted for another year's crop.

When we consider the work put in by the busy bee in our orchards during blossom season, we might just as readily expect to have the quality of our apples, pears or peaches ruined, yet nothing of the sort happens.

Therefore, do not be afraid of sowing side by side cucumbers, melons or other Cucurbits. Those who advise otherwise have not studied the matter, but are simply passing along an old and long ago exploded fallacy. But on the other hand, do not grow several varieties of muskmelon together if it is purposed to save seed, as different varieties of the same thing are liable to mix. This rule, of course, applies equally to cucumbers, watermelon, squash, etc. Where such crops are grown for seed the various varieties of the same species are all most carefully isolated.

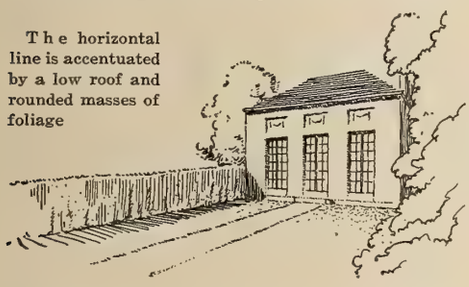
Penna. G. W. K.

[The link that binds the house and the garden, though fully realized and felt, is at the same time often intangible and elusive. In the subtle union and harmony of the two elements—outdoors and indoors—with the perfect transition from the one to the other in both directions, the charm of the garden as a part of the home is best expressed. Yet little attention has been given to the coördination of all the things and materials that enter into use here. It is such subjects that will be discussed under this department. Readers who have special problems before them in connecting the various parts and units of the house and the garden, indoors and out, are invited to confer with this department.—EDITOR.]

Roofs Seen From the Garden

W. H. BUTTERFIELD

STANDING IN our garden and looking about us we are impressed with the fact that its charm is due to three things: its arrangement, form and color, the cardinal elements of all design. Our garden has architectural accessories, several of them with roofs, and we are impressed anew how tremendously important are these roofs. This is true not only for the structures themselves, but for the garden and grounds. Their form and arrangement of parts with the color and material are in entire harmony with the "tout ensemble." Perhaps color and material are secondary to form and arrangement but nevertheless are mighty important elements and we shall limit ourselves for the present to their discussion.



The horizontal line is accentuated by a low roof and rounded masses of foliage

Remember that color in the tropics and color in the temperate zones are two different matters. In the tropics nature paints with a full brush and is lavish of color. All growth is brilliant and sparkling. In sterner climates this brilliancy is subdued or limited to a shorter time and it is necessary to consider long periods when the scheme is neutral or nearly so. In the summer, by planting, we are able to change color arrangements or keep to a certain key, but there are months in which grays, greens and sober browns predominate. For this reason we must be cautious of vivid coloring for the roofs. They are fixed elements and except with shingles change their color but slightly with the years.

The planting of your garden usually determines some permanent color scheme, since shrubs and the general run of hardy plants are usually fixed elements, being supplemented from year to year by the annuals. Since for the present we are so absorbed in our garden we look upon the house as an accessory. Usually its roof is the most in evidence, the other roofs conforming to it to be harmonious. How disastrous it would be to have a steep pitched red roof on the house and flat green roofs on the other structures. Of course where the garden is situated so far from the house as to be an entirely separate feature of an estate, these remarks lose their force and the garden with all its parts is treated independently. Being in our garden let us suppose that all the buildings were erected and finished but had no roofs. Shall we accentuate vertical or horizontal lines? Shall we terminate a broad level expanse with height or keep the horizontal feeling? This is more or less working backward but it explains the point. The roof of the main house determines the others, but the main house is usually given a roof to fit its style of architecture and very seldom is the garden considered.

The roof material of accessory structures should conform to the main building. Shingles offer certain advantages in texture and can be had of any color by the use of suitable stains

In selecting the color think of what permanent note you wish to introduce. How much roof expanse have you and where does it come in the garden? Are the roofs seen in juxtaposition with the spaces allotted to the annuals where the color is apt to change from year to year, or is it in close relation with trees and shrubs where the change is to the neutral colors of late autumn and winter? Are these questions often considered in the average small garden? They are important. Perhaps there are only the house and the garage roofs to determine but they are just as important to the garden as if there were casinos, playhouses, exedras or the like. A roof lighter in color than the walls which support it is never a pleasant sight. A roof should look solid enough to stay with the building, but not top heavy, and it is usually the color that makes for the former a virtue, while the shape gives the latter a fault. I have seen some very fine houses in rather darkish brick which were utterly ruined by having roofs so light in color that they were absolutely lost against the sky and the houses had the effect of solid masonry with paper roofs. This leads to the general rule: the lighter the walls the lighter the roof.

In this case perpendicular lines are emphasized to give height

The charm of texture is felt strongly in building materials. For our roofs we have a wide range, from the smoothest slate and tile to the "soft roughness" of old shingles or the unevenness of imported quarry slate. In general the more formal the building and garden the smoother and trimmer the roof. It's a question of appropriateness and taste. Wood shingles give a trim, even appearance when first laid, but as time goes on they roughen and curl up, turn darker and become more variegated in color, until at last, when the roof is very old, that is old for a shingle roof, the effect is quite uneven and is often termed "picturesque," a word, by the way, not used now-a-days in the higher artistic circles.

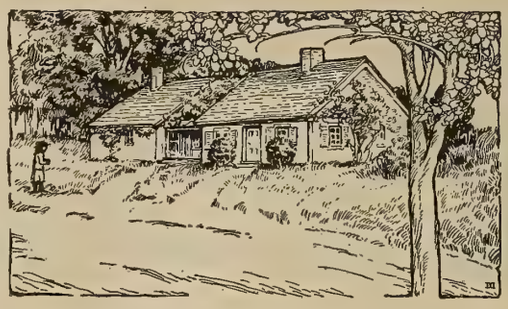
Ordinary slate lays up even and the texture does not vary. The color also does not change, except in the red varieties, which darken somewhat. There are slates now on the market, both imported and domestic, which are rough in texture with uneven edges and come in random widths and lengths, so that when on the roof the courses vary, some being wider than others.

Tiles have a smooth surface but the general expanse is broken up by the shapes except with the shingle tile. These are flat tiles like shingles but even these are so much thicker than shingles or slate that they give strong horizontal lines and are very useful for this purpose.

Classifying the various roofing materials we have:

I. Shingles
  1. Wood
  2. Asbestos
II. Slate
  1. Even and regular
  2. Rough and random
III. Tile
  1. Shingles or flat
  2. Overlapping edges
IV. Copper and Tin.

Formerly wood shingles were split with the grain which made them more durable and also gave a rougher, less formal surface than the present sawed ones. Split shingles with an old-fashioned garden are wonderful, but



they cost double or more than the other kind, as they must be split to order. They have heavier butts which give nice horizontal lines, somewhat uneven it is true, but ideal for the small, unpretentious building. For a trim roof the sawed shingles will do. The best quality comes 18 inches long and of random widths. They are cut from cypress, redwood or cedar trees, the cypress being the best, the cedar the more common and the redwood confined to the Pacific coast. They are laid 4, 4½ and 5 inches to the weather, and to cover 100 square feet it is necessary to have 1,000, 900 or 850 shingles. On irregular roofs add 10 per cent. for cutting.

Asbestos shingles have had some difficulty in finding favor with the architects, due in great part, I think, to the fiendish method of laying them diagonally, which destroyed the repose of the roof. They now are made to lay rectangular and even come with uneven edges and a marked texture which takes away the machine-made look of the earlier ones. They are in grays, reds and browns, but by all means don't choose the light grays, they are frightfully glary and ruin the charm of any good roof. Asbestos shingles are fireproof and do not expand or contract. Shingles are laid over shingle lath, secure to the roof rafters, no boarding being necessary.

Good slates are hard and tough. Soft slates loosen up around the nail holes and work out of the roof. If too brittle they break in the process of laying. The slate colors are blue-black, dark blue, purple, gray, green, and red. Sometimes the dark ones have patches of green. The usual run of slate are smooth surfaced with clean-cut edges and cut in sizes from 9 by 7 to 24 by 14 inches. The heavy, irregular coursed, rough edged slates are ideal for the garden and although costing more should be preferred every time to the smooth variety. The roof rafters are covered with board sheathing on which is spread waterproof paper or felt and the slates nailed over this with copper or galvanized nails. One hundred square feet of roof will require from 500 slates of the smallest sizes to 100 slates of the larger dimensions.

All tile is bound to give a heavier feeling to a roof than slate or shingles, especially the S and Spanish tiles. For this reason light, delicate buildings should not receive this roofing material. But on the larger, more architectural features of a garden, tile is ideal for it has a wonderful air of permanency. The shingle tile, as we have mentioned, give the strong horizontal lines and the overlapping edge tile give vertical ones. Red is the common color and is the cheapest. The green glazed tile are nearly twice the cost of the red, for they receive a special process in the making.

Soft tiles are light in color and hard tiles darker, for these latter have received more baking. Tiles are laid over boarding and felt, as for slate, and are secured by copper nails, but may be laid directly on wood purlins and fastened with copper wire from a pierced lug at the lower end of the tile.

Copper and tin would only be used for very flat roofs and would hardly come under this discussion as being out of sight from the ground, and not having a marked effect on the general scheme. However, a word or two may be added. Copper is the more lasting by all odds, but several times the cost of tin. Both are put on over boarding and paper with flat or standing seams which are soldered. The standing seam, however, is used only on roofs of considerable pitch, say one third. Tin must be painted frequently, the underside receiving a coat before laying. Copper does not require this.

Tile in various forms offer a wide field of choice in the selection of suitable roof texture and color. Soft tile are lighter in color than hard tile. They may be flat, as shown on left, or interlocking, as shown on the right

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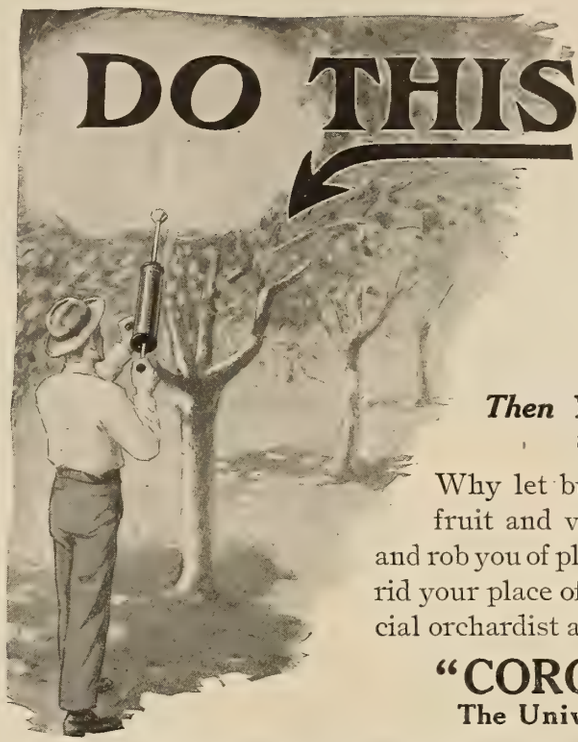

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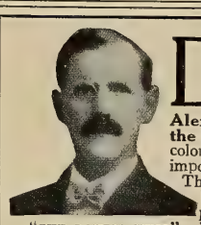

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Send for Catalog **Correspondence Invited**

Reminders for the South

DISCONTINUE the planting of peas, but plant Red Valentine beans every two weeks or Burpee's Green-podded Stringless bean, until the middle of June. Begin again the end of August for a late fall crop. Try the new vegetable dasheen. It is grown like the Irish potato and the same fertilizers should be used. It contains 50 per cent. more protein and starch than the potato; the young shoots can be cooked like asparagus and the small leaves make a good salad.

Strawberries are ripe about the middle of the month. They should have clean straw or pine tags under the plants to keep them clean. Working and fertilizing should have been done in April.

Keep down the weeds and watch out for insect and fungus pests. Slug-shot is effectual in destroying the potato bug and cabbage worm. Sprinkle early in the morning when the dew is on the plants.

If tomato plants are protected at night they can be planted out by the end of April or first part of May, otherwise not until the 20th. Have beside each plant either a large flower pot to turn over the plants at night or a piece of bagging hung on a stake in which to envelop the plant. Make the hills for tomatoes four feet apart each way and put in each one a spadeful of well rotted cow manure. In setting out the plants either from the coldframe or from pots, put about each one a collar of paper, letting it extend an inch below the surface of the ground and one inch above. Do this with spring-set cabbages also. Thus is a safeguard against cutworms.

Cabbages and lettuce should have an application of nitrate of soda every two weeks between the rows; a very little must be used for tomatoes. A much better fertilizer would be eight pounds of acid phosphate, three pounds of muriate of potash and seven pounds of cotton seed meal. After the plants are established, a teaspoonful of nitrate of soda dissolved in two quarts of water poured about the base of each plant would be invigorating. These proportions are enough for about two dozen plants. Do not put the fertilizer too near the stem of the plant. As all fertilizers are difficult to obtain now resort to deep plowing to obtain the potash which is in the subsoil. It is best not to have too rich soil for tomatoes, else they will go to leaf. An occasional watering with liquid from the manure barrel will be beneficial for all plants.

Sow seed in coldframes the first of the month for late tomatoes. New Stone is excellent, also Maule's Success and Matchless. John Baer is good, but not as early as Spark's Earliana. Sow seed of Winter Queen celery, also Golden Self-Blanching in coldframe. Beets sown in the open ground should be thinned out and the thinnings can be transplanted, but cut off the tops before doing so.

Golden Bantam is a good early corn, sweet and yellow, but small ears. It is subject to smut and corn worms, but they can be easily eradicated if at silking time the corn is sprayed at the tip end of each ear with a mixture of 30 per cent. sulphur and 20 per cent. arsenic early in the morning when the dew is on the plant. Country Gentleman and Stowell's White Evergreen are excellent for main and late crops.

Cucumbers and canteloupes and other melons are planted now, in heavily manured hills five feet apart. Sow a few radish seed in each hill as a catch crop for beetles; also take the precaution to put the little single coldframe over each one. These are little bottomless boxes measuring twelve by twelve inches, covered with cheesecloth. If in place of cheesecloth it has a glass top it hastens the plant to maturity, acting as a real coldframe.

Keep the soil on the asparagus beds constantly raked and free from weeds. Ground should be loose to permit shoots to push through readily. An occasional sprinkling of nitrate of soda just before a rain is helpful. Asparagus is a gross feeder and needs constant fertilizing. Also sprinkle salt occasionally. It keeps down the weeds.

Spray Irish potatoes from the time the plant first appears above ground with bordeaux

(*Continued on page* 252)

Gro Quik FORCER For Seeds and Plants

Double the Value of Your Garden

DO YOU know that you can grow *more* plants —and *better* plants—simply by using the GROQUIK forcer.

The GROQUIK helps nature to help your plants. It protects the seed by keeping the soil moist and crumbly. It protects the young shoot from damage by birds, insects, and the effects of bad weather. It concentrates the sun's heat on the growing plant—allowing just a sufficiency of air to promote strong, healthy growth.

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Killarney, sea shell pink; **Antoine Revoire,** rosy flesh; **Bessie Brown,** creamy white; **F. R. Patzer,** pink, light orange shading; **Etoile de Lyon,** sulphur yellow; **Helen Good,** delicate yellow; **Dean Hole,** intense salmon; **Clothilde Soupert,** best of all bedders; **Ecarlate,** dark red; **Champion of the World,** pink.

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For further information write

DR. WILLIAM S. MYERS, Director
25 Madison Avenue, New York

(*Continued from page* 250)

mixture, summer strength, an addition of arsenate of lead one and one-half pounds to fifty gallons of Bordeaux. This preparation is also good to use on the small cabbage plants. Later on when the cabbages head up slug shot would be better sprinkled on in the early morning.

The seed sweet potatoes should be put in hotbeds with wet leaves at the bottom and sand on top. Place the potatoes in this, water thoroughly, put on the glass frames and every day let in a little air. Do not allow them to become dry. When these have sprouted and made vines they should be planted in the open ground in long rows hilled up and four feet apart.

Spray vineyard for grape rot with summer strength bordeaux mixture every two weeks until the bunches are well formed. Spray peaches, plum trees and apple trees according to directions given in the April number of THE GARDEN MAGAZINE.

If the Rose bushes were sprayed in March with bordeaux and arsenate of lead there should be no disease and few if any rose chafers, but if they should appear spray with slug-shot in the early morning. Bordeaux is also a preventive for mildew, but if the March spraying has not been effectual dry spray with flower of sulphur in the early morning.

Separate Chrysanthemum shoots now if it was not done in April. Plant a few in a protected place about six inches apart, trim off the side shoots and cultivate only one good strong stem. Only allow a few buds on this to materialize. Late in the fall, if protected by a high frame covered at night with an awning, they will keep in flower almost up to Christmas. This is an excellent plant for the late flowering varieties which are so often blackened by the frosts.

Gladiolus planted in April and May two weeks apart for a succession of blooms are effective if put in groups in the flower border; a good color scheme is corn colored ones with Heliotrope planted in front, or the Baron Hulot planted in groupings of yellow Snapdragons. America planted in early May among the Rose bushes makes a pleasing effect and a fine showing of blossoms after the first Roses have passed.

Dahlia tubers should be placed in a bed of sand in a coldframe the last of April and in May the tubers cut apart, leaving a sprout to each piece. Plant these by the end of May. Ordinary garden soil is best if loose and pliable, but it should not be too rich, else they will run to leaves. Coal ashes loosen up a heavy soil. Fertilizers suitable for potatoes is best for Dahlias and if put around the plant at budding time will make handsome blooms. Plant in a row in the vegetable garden so that the earth can be kept cultivated about the plants. Cut off all weak shoots and only cultivate one good strong stem.

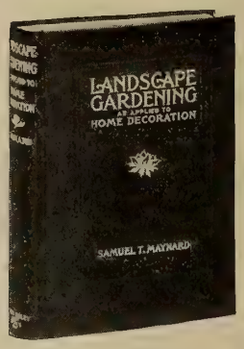
Unless the Rose beds have a ground cover of low-growing flowers, like Mignonette, Forget-me-not and Alyssum they can be nourished by trenching—that is, digging around each bush to the depth of one foot and width of six inches and placing in this trench well-rotted cow manure, throwing the earth over to prevent baking. A little hardwood ashes and soot put in at the same time make a better fertilizer.

Virginia. J. M. PATTERSON.

Making Straight Rows

THE simplest and best way that I have found of getting transplanted plants straight in the row and at precisely equal distances apart is as follows: Get a piece of clear white pine—or any other wood little likely to warp—as long as possible, and about two inches wide and half an inch to an inch thick. Mine is twelve feet long. On one edge of this strip cut narrow grooves with 6-inch centres. Lay this in the row, outlining the row first with a garden line, if it is longer than the measuring strip. Stick small garden stakes or any small sticks in the grooves at the proper intervals—six inches, a foot, eighteen inches or two feet—and then withdraw the measuring strip. The plant places are marked as accurately as it is possible to make them.

Minnesota. S. H. BINGHAM.



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They are of easy cultivation and Will Bloom this Season

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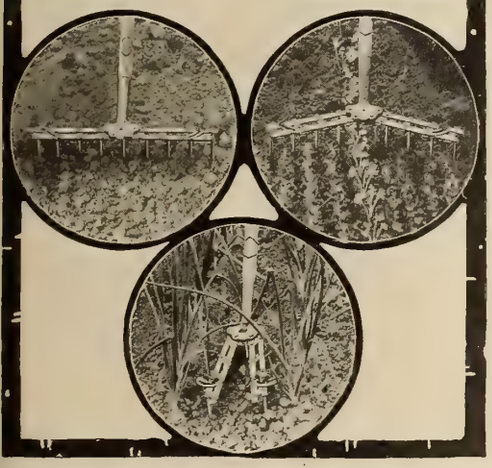

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Altho semi-shady places are the natural habitat of Rhododendrons, still hardened as ours are, you can plant them practically any place; provided you give them the simple care we will gladly suggest. Now that prepared humus can be purchased at so reasonable a price, the proper preparing of the soil ceases to be a problem.

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A necessity for the careful gardener, and a unique and welcome present for the garden-loving friend.

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The Readers' Service will give you suggestions for the care and purchase of cats and dogs and other pets

The GARDEN MAGAZINE READERS' SERVICE

This department will help in dealing with general conditions. It cannot render personal professional service

Beginning a Small Orchard

I want to start a small orchard with twenty apple, peach, pear and cherry trees; some few espalier, the others either dwarf or standard. Which would be the better? What two varieties of apples, peaches and pears, for late bearing, shall I plant, and what two early cherries for eating?—H. W., Penna.

—USE dwarf trees for a small orchard such as you intend to develop. They will, of course, be essential where trained plants are desired. While the dwarf trees require more care in pruning and thinning than standard trees, they give fully as good if not better fruit and bear almost if not quite as long. Fletcher's "How to Make a Fruit Garden" (price $2.20 postpaid) would give you just the information you desire. Bulletin No. 128 of the State Experiment Station at State College, Pa., on the "Apple in Pennsylvania," should also prove of interest. Reliable and high quality late apples for your section include Jonathan, McIntosh, Sutton, Delicious, Stayman. Pears: Bosc, Anjou, Winter Nelis. Peaches: Wonderful (white), Geary's (yellow), and, slightly earlier, Reeve's Favorite (yellow) and Stump (white). Of the sweet cherries especially suited for desert use we would mention Bing and Black Tartarian, both black, and Gov. Wood (amber). Of the sour cherries May Duke is a standard.

How and When to Prune Lilacs

What is the proper time and method of pruning a Lilac?—V. G. C., Ohio.

—PRUNE every year if handsome bushes covered with flowers are wanted. All flower clusters should be promptly cut off as soon as the plants have ceased blooming, and the multitude of suckers that invariably springs from the base of the common Lilac should be repeatedly removed throughout the season. The Lilac flowers on the wood of the past season's growth and must, therefore, not be cut back in the winter. Thinning, however, may be done. Carefully examine the bushes in the winter-time, and cut away the weak growths and crowded or superfluous branches, but do not cut back, as the flowers for the season would thereby be lost. Lilac bushes that have been neglected for a considerable time will be very tall and naked at the base, and will also be a dense mass of shoots. In such cases it is best to cut back in the winter-time, say within three or four feet of the base, to recover control of the bush and put it in proper shape. The flowers of the season will be lost but the bushes will break away freely, and form dense, handsome bushes, and, other conditions being equal, they will flower so freely the following season and have such perfect shape that the loss of the one season will be forgotten. Moderate pruning and disbudding of Lilacs can be done just after the blooming season. Thin out shoots where they appear to be congested, and rub against each other, and shorten back any straggling shoots that spoil the symmetry of the bushes. It is well to be cautious about summer pruning in general. When it is overdone, as it is apt to be in the hands of the inexperienced, its effect will be enervating to the subjects so drastically treated.

Propagating the Hollies

How are Hollies raised from seed and cuttings?—F. A. D., Wash.

—HOLLIES are propagated by seeds which do not germinate until the second year and are therefore stratified and treated like the Hawthorns. The young seedlings should be transplanted after the second year. The evergreen species may be increased by cuttings of ripened wood under glass, especially the European varieties; they are also sometimes grafted or budded on seedlings of I. aquifolium or opaca. The best way is to soak the fruits in water, and by maceration of the fruits the seeds, or nutlets, are separated from the pulp and will sink to the bottom of the vessel or tub. The seeds are then dried in the sun. They are sown in flats of convenient size to handle, and piled up in the corner of the shade house, being fitted tightly above each other to prevent mice getting at them. During this period of rest they must not be allowed to become dry. In the spring of the second year the flats are spread out to allow the seeds to germinate. If you wish to propagate by cuttings take half ripened cuttings in August and put them in a hotbed.

A Crop for a Clay Soil

What would be a good money crop to raise in clay soil on three-quarters of an acre, slight eastern slope? Have no farm tools, but can rent horse and cultivator.—H. W. T., New Jersey.

—WE COULD not suggest a crop for a three-fourths acre garden without knowing something as to the marketing demands and facilities. As far as a clay soil is concerned, strawberries, blackberries, plums, or almost any of the perennial vegetables should prove satisfactory; but you must, of course, choose something that you can get rid of when you have grown it. Except for the plowing and harrowing in the spring, we would not advise the use of horse tools, but would urge the purchase of a hand cultivator or a wheel hoe, costing approximately $12.00.

Foundation Planting

What flowers or shrubs can be planted around a house, fronting northeast; there is a 3-foot wide overhang roof. The foundation of the building is glazed tile. The soil is "Ohio clay." Grass will not grow nearer the house than twelve or eighteen inches and flowers will not thrive.—H. W. H., Ohio.

—NOTHING can be grown under the overhang of the eaves. The best treatment for such a building is to surround with a gravel or pebble walk and put the planting outside of the walk. This will give the effect of foundation planting and also insures the health of the plants. We would suggest low-growing plants, such as the hardy Spireas, Japan Barberry and Rosa rugosa.

Proper Method of Concrete Construction

About two years and a half ago I built a stucco house. It was not rough boarded, but the wire laths were fastened to the studs and cemented on both sides, three coats on the outside and one back coat on inside. The matter of waterproofing was brought up, but we were informed that it was unnecessary. We have always had difficulty in heating the house; the heating plant has been investigated and found all right, so we conclude there must have been something lacking in the cement construction. What course is usually followed in construction, such as I have described, to safeguard against dampness and cold? Is there anything that can now be used inside or out which will overcome our trouble?—A. K. W., Conn.

—WE ARE afraid that there are a great many people in the same position in that the workmen who built their houses did not know as much as they should in the use of stucco in exterior wall construction. Not only should the stucco have been impregnated with a waterproofing compound on the outside, but since the back plastering method was used, which incidentally is a very good one, the inside wall (that is, the inside surfaces of the studding), should have been well covered with building paper; or, better still, one of the felt blanket coverings, before the lath was put on. The only thing that we could suggest now is that the space between the studs might be filled with mineral wool, or perhaps even with cinders, to make the wall more resistant to the changes of temperature. This could be done by taking off the plaster, for instance, around the frieze of each room on the outside wall and filling the spaces from the top. Needless to say, it would be an extremely unpleasant operation. Still another possibility is the application of a whole new exterior surface over the old one. If this is done a quilting material should be put over the old stucco, this covered with building paper, and finally the new support for the lath. This might possibly fail at best, owing to the difficulty of getting the proper nailing on the blind surface of the old stucco.

Improving a Clay Loam

I want to improve the texture of a clay loam about five inches thick, underlaid by a stiff clay subsoil, and to increase its depth by using green manure. Can I sow red clover about the first of September for plowing under the following May or June? What crop could I then sow to plow under, sowing red clover again about September 1st?—R. M., New York.

—WE WOULD advise you to sow red clover in August and plow it under the following spring. You could then follow with rye or soy beans. If the ground is not now under a crop, we would suggest sowing soy beans immediately which could be plowed under in July and could be followed by clover or rye. Rye would be splendid under the circumstances as you would get a good growth of it this season and it would help to hold moisture in the soil over winter. Another course would be to sow buckwheat at once and plow it under when mature and then sow rye or clover. You can certainly improve the soil by either of these methods.

How to Insure Coolness

I am planning to move to northcentral Alabama, where the summer heat at times is quite extreme and oppressive. I want to build a bungalow that will be always "cool and comfortable"; are there any architectural ideas or principles that I may avail myself of, other than mechanical devices for cooling, as for instance the use of double walls, double roof, etc.?—J. O. G., Oregon.

—THERE is no one thing that will keep a building cool so well as a double roof which is open all around between the two portions. The flatter this roof is the better, so we would suggest a very low pitch with a foot or a foot and a half clear space between. This upper roof, of course, could be of canvas stretched on a frame in the summer and removed in the winter time. In India a device of this kind is in use, but here they go to the additional trouble of sprinkling the upper roof so as to secure additional coolness resulting from evaporation. It would seem to be an unnecessary expense to build double walls for the reason that doors and windows will be so constantly open in the summer that the inside of the house would be warmed in this way, anyway. We suggest, rather, that the house be located in a grove of trees.

The Value of Dwarf Fruit Trees

What is the value of dwarf fruit trees? Do they give good fruit, last a reasonable time and are they healthy? Does the fruit deteriorate as the trees grow older? Can grape vines be bought old enough to bear immediately?—L. P. W., New Jersey.

—WHILE dwarf fruit trees do not offer much to the commercial grower, they certainly provide very definite advantages for the owner of a small garden. While somewhat shorter lived than the standard trees of the same kind they are good for anywhere from fifteen to thirty or more years of fruit bearing, and, if anything, the fruit is of higher quality than in the case of standard trees. This, maybe, is due in part to the fact that dwarf trees are much more easily sprayed, pruned, and thinned. Of course, for best results they require a considerable amount of careful management, especially in the form of pruning. It is impossible to get any sort of return from any fruit tree, bush, or vine the first season after it is planted. Of course, the older a grapevine is the more readily one might expect it to bear; but to offset this there is the fact that the older the vine the greater the shock of transplanting and the longer the period needed for becoming reëstablished. There is little hope, therefore, of being able to buy grapevines that will "bear immediately."

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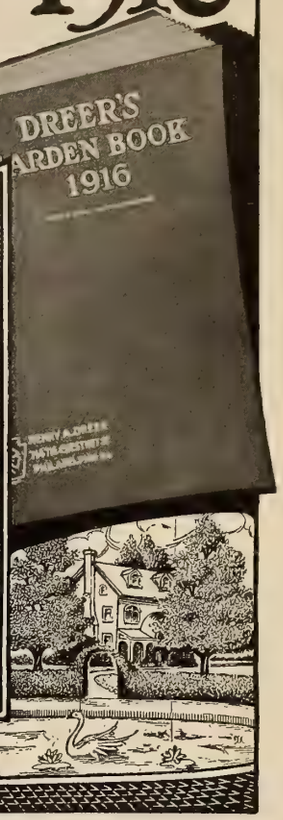

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Gardening for Young Folks

Conducted by Ellen Eddy Shaw

Gardening in the Elementary City Schools

C. D. Jarvis, U. S. Bureau of Education

Presented before the American Nature Study Society, Columbus, O., December 30, 1915

TO VITALIZE their school studies, or to facilitate the acquirement of a knowledge of the essentials in education, children need some kind of active experience in the affairs of life. Before the excessive centralization of population such experience was provided by the varied activities about the home. Our school system has not conformed to the changing conditions under which people live.

To facilitate the free choice of a vocation, children should be provided with a kind of training that will acquaint them with the advantages and opportunities in the chief industries. According to the 1910 census, 95 per cent. of our people are engaged in either agriculture, industrial work, commerce, or transportation. Our present system offers little opportunity for children to gain any idea of the character of these predominating occupations. If our boys and girls are to select from any of the occupations for which our schools prepare them, they must choose one in an already overcrowded field.

To train children in habits of thrift and industry; to develop stronger-bodied children; to make it possible for children to remain longer in school and to escape the evils attending early confinement to shops, mills and mines; to make it possible for children to contribute to the support of the family while attending school and to convince parents that it is worth while for children to continue their school work, boys and girls should be provided with interesting, wholesome and remunerative employment at an early age, and while attending school.

To supply these needs for the benefit of children in towns and cities there is no more available means than that offered by productive gardening. In most cities, there is abundant land in the form of backyards and vacant lots that should be used for educational and economic purposes. Where home backyards are available they should be used by the children of the family. For children who live in homes without backyards or without sufficient land, vacant land near the home usually may be obtained. Each child, wherever possible, should be given a piece of ground equivalent in size to an ordinary backyard or as much as he or she can manage. Each of these assigned plots always should be regarded as the child's home garden rather than a part of a school garden. In other words, the child should assume the responsibility, rather than the school.

In the congested areas of a few of the larger cities it will be difficult to find sufficient land to conduct the work on such a broad basis, and, in such cases, we shall have to be satisfied with the small plot idea so commonly employed at the present time. Gardening on these small school plots offers an opportunity for children to acquire a limited knowledge of the phenomena and forces of nature and affords a wholesome form of recreation, but does not give a child a fair idea of the possibilities of gardening.

In order that children may get the most from their home project work in gardening, a teacher, trained and skilled in gardening, should be provided for each school or for every 100 or 150 children of the gardening age. This teacher should be engaged for twelve months with provision, if desired, for a vacation during the winter. Such a teacher may devote her forenoons during the school year to the teaching of agriculture, nature study, elementary science, home-making, or other special subjects. Until the people come to believe that it is worth while to teach these subjects in the elementary schools, we may require a specially qualified grade teacher to instruct the children of the whole school in the subject of gardening. Some cities now are engaging a good supervisor of gardening with a view to training and supervising a number of their own teachers. The teachers selected for the purpose are engaged for twelve months and are given special remuneration to compensate for the additional time and labor expended.

The instruction afforded should be largely of a practical nature and should be given in the child's home garden. The teacher, during the winter months, should be able to show the other teachers how the work of the garden may be correlated with other subjects, and she will need to make individual garden plans so that there will be no delay when the gardening season opens.

After school, on Saturdays, and during summer vacation the teacher directs the work of gardening. After all preliminary preparations have been made and the planting season has arrived, she instructs the children in their own backyards. During the rush season she works with groups of about ten or twelve. For the benefit of the children within a restricted area she demonstrates, on one afternoon, the methods of preparing the soil and planting the seeds. The next afternoon, she does the same thing in another section for the benefit of the ten or twelve children there. This programme is continued until all the children assigned to her have seen these preliminary operations performed. She then demonstrates other phases of the work in the same way. Later in the season, and especially after the school has closed for the summer, she makes visits to the individual backyards and encourages the children to take good care of their gardens and to see that they keep up a continuous supply of vegetables for the home and market.

Accurate accounts of costs, receipts and profits should be kept and the whole project should be put on a business basis. Children should be expected to pay for everything that they use. Lack of sufficient funds should not prevent any children from securing supplies sufficient to make a profitable home project. Some fund, from which children may borrow money with which to buy supplies, should be provided. This affords an opportunity for a good lesson in the use of borrowed money, and in business integrity.

The strongest inducement that we can hold out to children to conduct a project is to promise and insure a profit in dollars and cents. If the work is not profitable, the children, sooner or later, will lose interest. Some well meaning people have tried to maintain the interest by holding up before the children the chance of winning a prize for good garden work. In most cases, such effort has resulted only in temporary benefit, and in many it has actually defeated the aims for which it was undertaken. Where prizes are offered, children focus their attention on the prizes and, too often, lose sight of the real advantages of the work. Whether we should give prizes to children for the purpose of encouraging them to do things that they ought to do for their own benefit, is doubtful, and the belief that it is all wrong is a growing one. The use of achievement badges is decidedly a safer way to maintain interest, for such badges call attention to the achievement itself.

In conclusion, then, we believe that the work of gardening is of great benefit in the training of children in towns and cities. We believe that the work should be conducted on an intensive, businesslike and profitable basis. To insure this, qualified teachers should be provided for groups of children not exceeding 200, and such teachers should be retained throughout the summer.

? Is It Possible To Have Hardy Hybrid Rhododendrons ?

Mr. E. H. Wilson's

article in the June GARDEN MAGAZINE will explain how the American Gardener may be emancipated from the present day handicap of European tenderness.

This is one of the most potently suggestive contributions to our recent knowledge and will thrill the progressive gardener to look into the rich materials recently brought to hand.

What *Will* Grow *Under* Trees?

"Aye—there's the rub!" Of all places that try the patience of the gardener that corner under the shade tree that shelters the piazza is indeed the most exasperating. Can anything grow there? MR. STEPHEN HAMBLIN, who in earlier issues has solved the problems of pure sand, heavy clay and that poor strip around the house, tells you now what to put under trees on the lawn. Of course the opportunities are not great—all the more reason to begin properly and *deserve success*, even though you *can't* command it, Horatio. You can't do more!

Will You Play Ganymedes To The Plants In Summer?

"Though Heaven may be an attractive place of residence," says MR. FLETCHER STEELE, "it is a very inadequate source of water supply from the gardener's material point of view. Rubber hose, galvanized iron pipe and sprinkler devices will save you many a backache, *and a crop, too.*" Read this article on "Irrigation Watering and Sprinkling" because without water the *crop comes a cropper!*

Do You Know Beans?

Probably not as well as MR. ADOLPH KRUHM does. His wonderfully illuminating article on the types and varieties of Radishes, Lettuce, Peas and Onions can be carried one part farther and you will then really know something about *string beans without a string.* That's what your wife wants, and she can have them if you will.

What To Do In June?

We need hardly tell you, perhaps—but all the same there's the Month's Reminder and all the usual timely notes—What to Plant—What to Gather—What to Think About.

What Was The Sensation?

Of the New York and Philadelphia Flower Shows. See the pictures in the June Garden Magazine.

Don't Forget That Friend

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COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Exhibitions for May

1. Colorado Florists' Club, Denver, Colo.: meeting.
   New Bedford, Mass., Hort. Society: meeting.
   Retail Florists' Asso. of St. Louis, Mo.: meeting.
2. Buffalo, N. Y., Florists' Club: meeting.
   Florists' Club, Philadelphia, Pa.: meeting.
   Florists' Club, Washington, D. C.: meeting.
   Knoxville, Tenn., Florists' Society: meeting.
   Minneapolis, Minn., Florists' Club: meeting.
   Lake Geneva, Wis., Gardeners' & Foremen's Asso.: meeting.
   Pittsburg, Pa., Florists' and Gardeners' Club: meeting.
   State Florists' Asso. of Indiana, Indianapolis: meeting.
3. Kentucky Society of Florists, Louisville, Ky.: meeting.
   Short Hills, N. J., Garden Club: meeting.
4. Chicago, Ill., Florists' Club.: meeting.
   Dayton, Ohio, Florists' Club: meeting.
   Milwaukee, Wis., Florists' Club: meeting.
   Marshfield, Mass., Garden Club: meeting.
   Albany, N. Y., Florists' Club: meeting.
   Garden Club of New Rochelle, N. Y.: exhibition.
5. Pasadena, Cal., Hort. Society: meeting.
6. N. Y. Botanical Garden, Bronx Park: lecture, "Rock Gardens," Richard Rothe.
8. Cincinnati, Ohio, Florists' Club: meeting.
   Park Garden Club, Flushing, L. I.: meeting.
   Germantown, Pa., Hort. Society: exhibition.
   Florists' Club, Rochester, N. Y.: meeting.
   New York Florists' Club, New York City: meeting.
   Springfield, Ohio, Florists' Club: meeting.
9. Syracuse, N. Y., Rose Society: meeting.
10. Nassau Co. Hort. Society, Glen Cove, L. I.: meeting.
    Short Hills, N. J., Garden Club: meeting.
    Morris Co. Gardeners' & Florists' Society, Madison, N. J.: meeting.
11. Worcester Co. Hort. Society, Worcester, Mass.: exhibition.
    Omaha, Neb., Florists' Club: meeting.
    St. Louis, Mo., Florists' Club: meeting.
12. Conn. Hort. Society, Hartford, Conn.: meeting.
13. Dobbs Ferry, N. Y., Hort. Society: meeting.
    N. Y. Botanical Garden, Bronx Park: lecture, "Irises for American Gardens," Arthur Herrington.
15. R. I. Florists' & Gardeners' Club, Providence: meeting.
16. Gardeners' & Florists' Asso. of Ontario, Can.: meeting.
    Gardeners' & Florists' Club of Boston, Mass.: meeting.
    Portland, Ore., Floral Society: meeting.
17. R. I. Hort. Society, Providence: meeting.
    Tarrytown, N. Y., Hort. Society: meeting.
    Short Hills, N. J., Garden Club: meeting.
18. Marshfield, Mass., Garden Club: meeting.
19. Pasadena, Cal., Hort. Society: meeting.
20. N. Y. Botanical Garden, Bronx Park: lecture, "Valuable Plants Introduced from China," Frank N. Meyer.
22. Park Garden Club, Flushing, L. I.: meeting.
24. Short Hills, N. J., Garden Club: meeting.
26. Conn. Hort. Society, Hartford, Conn.: meeting.
27. Dobbs Ferry, N. Y., Hort. Society: meeting.
    N. Y. Botanical Garden, Bronx Park: lecture, "Plant Hunting in China," Prof. E. H. Wilson.
    Myers Park, N. C., Flower Show.
31. Short Hills, N. J., Garden Club: meeting.

Rose Fête at Roslyn, L. I.

THE successful opening of Willowmere Rose Gardens last year in the interest of the American Ambulance Hospital at Neuilly, France, has induced Admiral Ward to repeat the event this year. Although last year's occasion was on very short notice, more than 1,200 people took advantage of the opportunity to see this excellent Rose collection. Arrangements have been concluded for the opening of the garden this year on Thursday afternoon, June 8th, from three to seven o'clock, when the American Ambulance Hospital will again be the beneficiary. Tickets of admission, one dollar, may be obtained from Mrs. Robert Bacon, of Westbury, L. I. In case of rain, the garden will be shown the following day.

A Community Garden Club

MYERS PARK is a suburb built around an open park which has been a show place of Charlotte, N. C., for many years. The developers have planted trees and shrubbery in every available place, and the restrictions as to the size of lots leave open spaces, inviting garden making.

The Service Department of the Company gives a new family a year's subscription to some attractive magazine pertaining to home building and gardening, and in the office are files of *Country Life in America*, THE GARDEN MAGAZINE, etc., which are kept for the benefit of any one who cares to read them. It was noticed that if any two ladies were together for a short length of time, they would be found discussing Roses, or Hydrangeas, or peas or radishes; and the much greater benefit to be had from discussing the subject in groups of twenty or thirty, instead of twos and threes, was obvious. So invitations were sent out for a preliminary meeting of a Garden Club.

Between thirty and forty women responded to the invitation and the enthusiasm at this first gathering easily assured the success of a Garden Club. Miss Ethel Gowans, from the Bureau of Education in Washington, who was in Charlotte in the interests of school gardens, gave an interesting talk on "Planting the Home Grounds."

Organization is now complete. Mr. Earle S. Draper, the resident landscape architect, has given a talk on "The Care of Hardy Shrubs." At one meeting every member was presented with catalogues from leading seed houses. Meetings take place twice a month, on the first and third Tuesdays, in the Service Department office, as the membership, numbering sixty-one, is too large to permit meetings in private homes. A separate chairman and acting secretary officiate at each meeting. There are three short papers by members, and a general discussion of these by all present. Each member is asked, if possible, to bring one flower from her garden, to stimulate interest and exchange of ideas.

Another part of the work will be observation and recording of the blooming dates for flowers in this location, the Department of Agriculture having supplied the phenological blanks for the purpose. The last spring meeting, on May 27th, will be a flower show.

SARAH P. THOMAS.

The Larchmont Garden Club

THE Larchmont Garden Club has held during the winter a very interesting series of lectures on such topics as "Secrets of the Soil," "Japanese Gardens," "How Nature Makes Plant Food Available," "Insects," "Hardy Shrubs and Evergreens" and the lecture this month on "Landscape Architecture in Home Gardens." The officers for the present year are: President, Mrs. E. Levy; First Vice-President, Mrs. Lindsley; Second Vice-President, Mrs. Ed. C. Griffin; Treasurer, Mrs. Herman Fougnes; Secretary, Mrs. Ellsworth Smith; Auditor, Mrs. Wm. Ackerman. The membership has increased considerably and a very helpful year is anticipated.

ELEANOR G. SMITH, *Secy.*

A Vigilant Civic League

THE Town of Troy, Pennsylvania, is situated among the hills of Bradford County. The springs of these same hills furnish its water supply, which, while pure, was at times in the past inadequate, so that ground water supply, including the waters of a stream, was combined with the spring supply.

In the fall of 1912 the heavy rains caused a deposition of sewage to pollute this stream and residents of the borough found themselves in the midst of a typhoid epidemic. The aftermath resulted in the formation of a vigilant Civic League. Our attention called thus forcibly to matters of sanitation, the extermination of mosquitoes and flies was begun.

Heretofore tin cans, empty bottles and refuse generally, had been promiscuously thrown into the creek which runs through the town. General "clean-up" days were established, when ashes, cans. etc., were carried free from the premises of any one desiring to be rid of them. Alleys and the rear of business blocks were generally tidied and various old sheds removed.

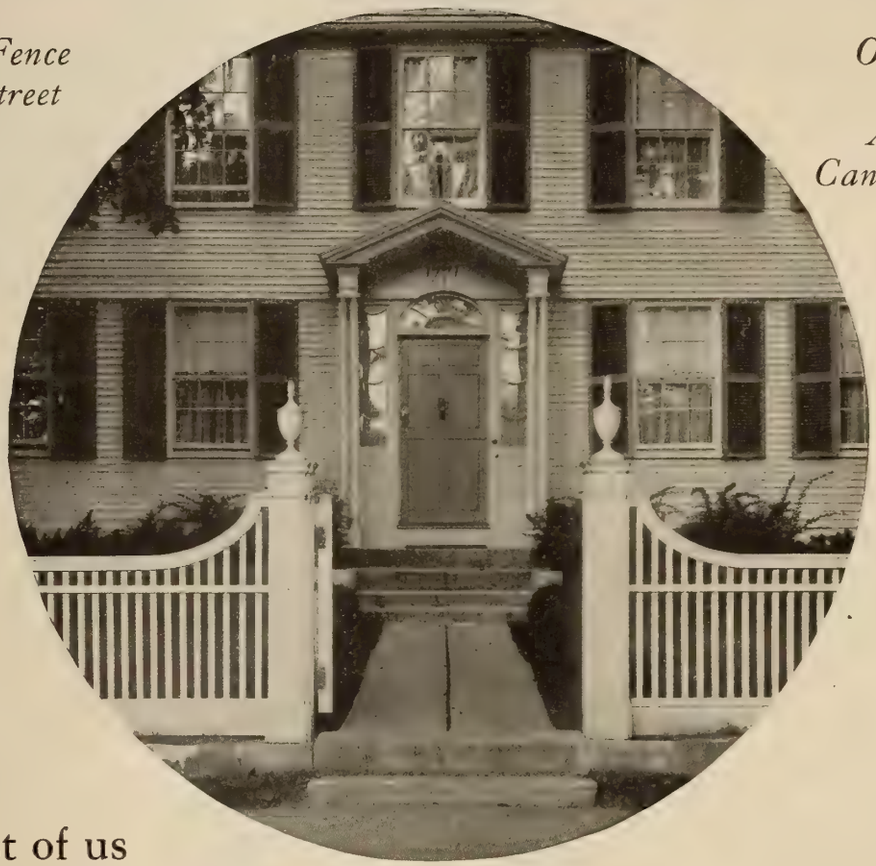
Fearing germ-laden dust, the streets were oiled by public subscription solicited by committees. An open place in the square was made into an attractive triangle consisting of a flower bed, surrounded by grass edged with Privet, the

(*Continued on page 260*)

Does this sort of thing appeal to you?

White Picket Fence
Elm Shaded Street
A well worn
Stone Stoop

Old Lilacs and
Box Bushes
A gate with a
Cannon ball weight



It gets most of us

just why — well, read Frank E. Wallis's story of a New England village of his dreams and find out in the June

COUNTRY LIFE IN AMERICA

Nor do you want to miss these other things—just a few samples of what the JUNE Issue is to contain

George Washington as a Farmer PAUL WILSTACH

Some Reflections of a Back-to-the-Lander JOHN ANTHONY

The Polo Situation HERBERT REED

One of the Oldest Houses in New England —*Dating from 1681*

Organizing a Wayside Tea House C. H. CLAUDY

A. C. Wyatt's Paintings of the Auchincloss Garden, at Newport—*in full color*

Trellises of Old Cape Cod

A Farm that Came Back on Bacteria H. W. COLLINGWOOD

Bird Neighbors—
A new department conducted by T. Gilbert Pearson, Secretary of the National Association of Audubon Societies.

To New Readers—*Subscribe for the Country Life Season*

In the spring and summer months country living has its greatest charms, and it is during the same period that Country Life in America is of the most value to its readers. That season will soon be here. When it comes, have Country Life in your home every month and see whether it does not fill a need that you have often felt.

A SPECIAL OFFER

We will send the next five issues of Country Life in America, beginning with the April number for $1.00. This offer applies only to new subscribers.

Please Use Coupon

G.M. 5-16

Country Life in America Garden City New York

Gentlemen:
Enclosed please find $1.00 for which send the next five issues of Country Life in America, beginning with the April issue.

Name.....

Address.....

.....

National Defense and International Peace

What the Engineers are Doing

THIRTY thousand American engineers are making a card index survey of American industry so that it may be prepared for its vital part in defending the Country, if need comes. The past eighteen months have taught us here in America what lack of industrial preparedness has meant to some of the countries now at war. These nations had the ships and they had the men; but when the hour struck, their factories were not able to furnish the colors with arms and shells and powder. Their factories were not prepared. And our factories are not prepared.

But it is not enough to draw a moral. In the United States five great Engineering Societies—Civil, Mining, Mechanical, Electrical and Chemical—have pledged their services to the Government of the United States, and are already working hand in hand with the Government to prepare industry for the national defense. They receive no pay and will accept no pay. All they seek is opportunity to serve their country, that she may have her industries mobilized and prepared as the basic line of defense.

All elements of the nation's life—the manufacturers, the business men, and the workingmen—should support this patriotic and democratic work of the engineers, and assist them cheerfully when asked. *There can be no better national insurance against war.*

The Associated Advertising Clubs of the World, representing all advertising interests have offered their free and hearty service to the President of the United States, in close co-operation with these five Engineering Societies, to the end that the Country may know what the engineers are doing. The President has accepted the offer. The engineers have welcomed the co-operation.

This advertisement, published without cost to the United States, is the first in a nation-wide series to call the country to the duty of co-operating promptly and fully with the Engineers to prepare industry for

ASSOCIATED ADVERTISING CLUBS OF THE WORLD — TRUTH

NATIONAL DEFENSE AND INTERNATIONAL PEACE

Stained with Cabot's Shingle Stains
Wilson Eyre, Architect, Philadelphia

Decay-proof and Cyclone-proof

....."always been favorable to your Stains and used them on my own home. The cyclone destroyed the place last March, and in going *over the wreckage found that the shingles not blown away are as good as new,* although they had been on the house thirteen years last January. In that time they were given two coats of Cabot's, when the house was built, and two coats about six years ago."

R. W. Koch, Omaha, Neb., May 20, 1913.

Cabot's Creosote Stains

thoroughly preserve shingles and all other woodwork, and give soft, velvety colorings that wear as well as the best paint, although the cost is only half as much. They are made of the finest and strongest colors, ground in pure linseed oil, and the liquid is refined Creosote, "the best wood preservative known." No kerosene or benzine, no crude or tawdry colors, no washing off—but be sure to get Cabot's and not a cheapened subsitute.

You can get Cabot's Stains all over the country. Send for stained wood samples, and name of nearest agent.

SAMUEL CABOT, Inc., Manufacturing Chemists
1 Oliver St., Boston, Mass.

(Continued from page 258)

whole enclosed by a neat iron pipe railing. Some of us have since regretted the choice of Privet, Barberry being more satisfactory.

The school directors caught the spirit of improvement; they graded and seeded the school grounds, purchasing later adjacent lots for the playgrounds, and this last year increased the capacity of the building by a large addition to the building, to furnish class rooms accommodating the department of agriculture.

Last year a Neighborhood Garden Club was tried out, its purpose being to coöperate with the League and under its direction to bring about more wholesome conditions in the village, and to increase its general attractiveness.

Prizes were offered and awarded on a day known as Community Day to families who had kept their grounds about their homes in the most attractive condition. Members paid a fee of twenty-five cents and entered the contest. The League duplicated the amount thus raised and prizes were awarded by three judges, who, in a conscientious manner, visited the homes of the competitors at various periods.

New York's Spring Show

AS THESE pages go to press the New York Flower Show opens—an artistic achievement far in advance of any previous flower show. Time compels this brief notice here, but next month the matter will receive further attention.

A Garden Record Book

NOTICE was given at one of the recent meetings of the Greenwich Garden Club of a Garden Record Book which has been printed and is now ready for sale. It is about eight and a half inches long by five inches wide, with flexible leather or black oil cloth covers, and sells for two dollars and fifty cents. It contains a complete inventory of work accomplished, implements, seeds, etc., bought and cash expended for a period of five years, under one cover. Space is also provided for notes, etc., on garden lectures attended. Members of garden clubs desiring this book should send orders to Mrs. H. W. Hamlin, Greenwich, Conn.

A Women's Conference in Boston

THE third annual meeting of the Women's National Agricultural and Horticultural Association will be held in coöperation with the Women's Educational and Industrial Union at Horticultural Hall, Boston, on May 18 and 19.

This conference is to cover a variety of subjects: "Preparedness in Agriculture," "Developments in Horticultural Training," "Flower Gardening for Profit," "Trees and Hedges for Town and City Planting," "Vacant Lot Gardening," "Bees as Pollenizers," "The Tree Rust," "Color in the Garden," etc. An interesting feature will be the "Garden Sale" of perennial plants, seeds, garden aprons, hats, buckets, flower glasses, and other garden accessories offered by the members of the Women's Educational and Industrial Union.

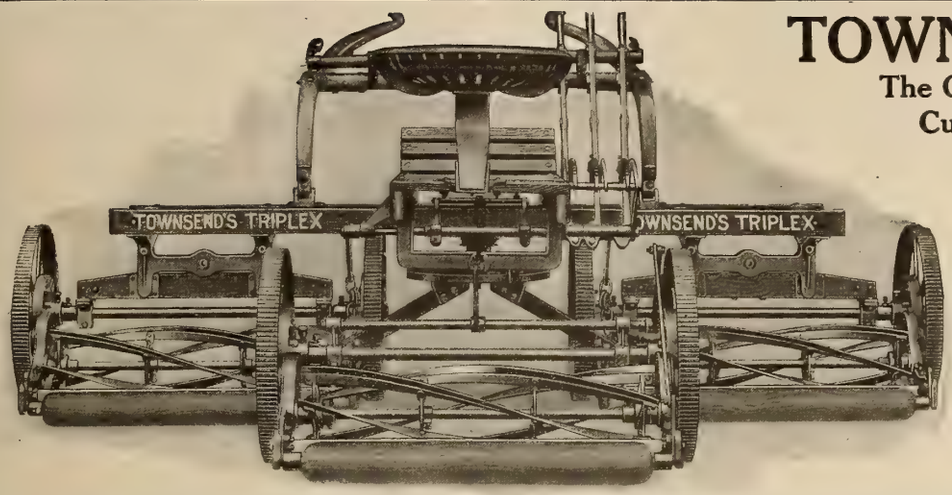
The exhibit of members' work of the Women's National Agricultural and Horticultural Association is in the hands of an able committee (Mrs. B. Hammond Tracy, Wenham, Mass., Chairman) which hopes to show by varied contributions ranging from garden photographs and pottery to butter, eggs, cream and honey, what this organization is doing along commercial as well as educational lines.

Peony Show for New York

THE annual Peony exhibit of the American Peony Society (to be held in conjunction with the Horticultural Society of New York), June 9th, 10th, 11th, will take place in the Museum of Natural History.

Canadian Tulip Festival

THE St. Thomas Horticultural Society, the largest in Ontario, will hold a Tulip Festival May 11th to 14th, under the auspices of the Ontario Horticultural Association. Visitors will be shown about the city where 160 public boulevard beds, containing 25,000 Tulips, have been planted by the Society. In the parks and private gardens, which will be open to inspection, will be found 200,000 more. The exhibit of Tulips will comprise two hundred varieties.



TOWNSEND'S TRIPLEX

The Greatest Grass-Cutter on Earth
Cuts a Swath 86 Inches Wide

Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse-drawn mowers with three horses and three men. (We guarantee this.)

Floats over the uneven ground as a ship rides the waves. One mower may be climbing a knoll, the second skimming the level, and the third paring a hollow. Does not smash the grass to earth and plaster it in the mud in springtime, nor crush out its life between hot rollers and hard, hot ground in summer, as does the motor mower.

Send for catalog illustrating all types of Townsend Lawn Mowers

S. P. TOWNSEND & CO., 23 CENTRAL AVENUE ORANGE, N. J.

What Do You Do With Your Spare Time?

IN every college throughout this broad country there are students who are paying their tuition with money earned in spare moments. In every walk of life there are people adding to their incomes by engaging in some pleasant and profitable occupation during their spare hours.

You Have Spare Time — What Do You Do With It?

Most people turn to magazine work because it is interesting and profitable; the field is large and ten dollars or more a week can be added to your income, provided you interest yourself in distinctive publications. The World's Work, Country Life in America and Garden Magazine are popular, easy to sell, and subscriptions to them when expiring are usually renewed.

Write to the following address for our rates of commissions and rebates. We have a liberal offer to give you.

CIRCULATION DEPARTMENT
DOUBLEDAY PAGE & COMPANY, Garden City, N.Y.

DREER'S ROSES

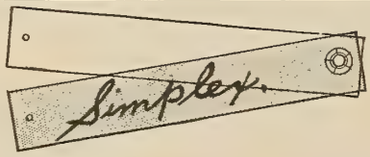
For the Garden

STRONG, two-year-old, pot-grown Rose Plants that will give a full crop of flowers this season is one of our most important specialties. In our Garden Book for 1916 we offer and describe over two hundred of the choicest varieties, including the latest introductions of the world's most famous Hybridisers.

SPECIAL: The "Dreer Dozen" Hybrid-Tea Roses, a collection of high-grade sorts that always do well, — for $5.00.

Or, send for a copy of the Garden Book free, and make your own selection. Please mention this magazine.

Henry A. Dreer *Rose Specialists* 714-716 Chestnut St. PHILADELPHIA, PA.



Label Your Roses and Plants

Do Not Forget Their Names

SIMPLEX WEATHERPROOF LABELS ARE PERMANENT

PLANT LABELS
including copper wires for attaching
PRICES

No. 1.	Size 3 x ½ inches 25c doz.	$2.00 per 100
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No. 3.	Size 5 x 1 inches 75c doz.	6.00 per 100

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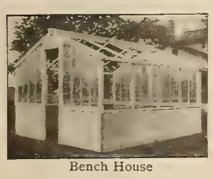
GARDEN LABELS
18 inches high—Card 2¾ x 1½ inches
PRICE
15 cents each
$1.80 per doz. $15.00 per 100
By express—transportation charges extra

***At all up to date dealers or from* STEWART & COMPANY, 169 Broadway, New York**

Sunken Path House


Bench House

A Perennial Garden!

Add Glass to nature and you have it!

Get a SUNLIGHT outfit of sashes or the small, ready-made, inexpensive and thoroughly efficient Sunlight greenhouse.

Immediate shipment made.

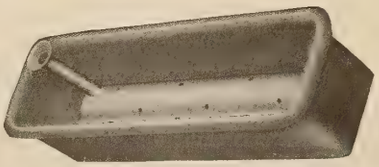
Write for our free catalog. If you want Prof. Massey's booklet on Hot-bed and Greenhouse Gardening, enclose 4 cents in stamps.

SUNLIGHT Double Glass Sash for Hot-beds and Cold-frames

SUNLIGHT DOUBLE GLASS SASH CO.
927 E. Broadway
Louisville Ky.

SAVO METAL FLOWER AND PLANT BOX

Self Watering and Sub-Irrigating



Attention only twice a month. Irrigates the soil thoroughly, supplies the air to the roots continually, rendering the soil mealy and loose throughout the Box. Made of heavy galvanized steel, artistic in design and beautifully finished in Aluminum, Gilt or Dark Green.

Model A—6½	inches high,	6¾	inches wide,	23	inches long			$1.75
Model B—8	"	"	9½	"	"	29	"	"	2.50
Model C—8	"	"	9½	"	"	35	"	"	3.00
Model D—8	"	"	9½	"	"	41	"	"	3.50

Shipped promptly on receipt of price. Satisfaction guaranteed or money refunded. Ref. Bradstreet or Dun. Write for Free illustrated Booklet.

SAVO MANUFACTURING COMPANY, Dept. C, 39 South La Salle Street, Chicago, Illinois
Manufacturers of the Well Known "Savo Air Moistener"

THE more the bright, warm sunlight pours in on the plants and vines the more plentiful and beautiful the bloom, the more fragrant the fruit. So during the short days of winter it is very essential that the plants in the Greenhouse get every bit of the sunlight from morning until late afternoon.

King GREENHOUSES

Have a special type of construction, which permits of great strength without the need of heavy shadow casting supports. This gives the plants all the sunlight all day long. Note the amount of light and shadow in the upper picture.

In addition to its great strength the King type of construction lends itself to the graceful sweeping lines which harmonize with any style of architecture—That is why a practical, productive King house is in itself a thing of beauty.

We can build you any kind of a greenhouse you desire; when you send for bulletin 47 why not describe that house you have always wanted, that ideal greenhouse of your dreams. Our experts will gladly and without any obligation work your ideas into a practical sketch. Since the days of fairy tales a King has been able to make dreams come true.

KING CONSTRUCTION CO.
302 King Road, North Tonawanda, N.Y.
All the Sunlight All Day Houses

Water Supply for FARMS and Country Homes
Send for descriptive Catalog A
LUNT MOSS CO.
BOSTON, MASS.

Rush Jobs Under Glass

ROSES can be planted in the greenhouse this month, and a great deal depends on how this work is done. The benches should be whitewashed with hot lime, and drainage of some sort, of course, is advisable. Soil is the most important factor—a stiff, clayey soil, to which has been added about one fourth well rotted cow manure is preferable. If this cannot be obtained, make a compost of chopped sod and crushed bone, one part of the sod to twelve of bone. Fill the benches flush with this, without any packing. When planting, be sure that the soil is thoroughly firmed; the heavier the soil the less firming is necessary.

Old Rose plants that are intended for carrying over another season should now be rested up by reducing the water and giving more ventilation. Bring this around gradually. Do not cut the flowers; in fact, there should not be any, if the buds are removed as quickly as they form.

Do not neglect the Carnation plants in the field and greenhouse bench. Pinch them regularly, keep well cultivated and spray frequently with bordeaux mixture or ammoniacal copper solution.

Gardenias for next winter flower should be growing fast. If there is any indication of buds forming, the soil is not rich enough to keep up a luxuriant growth of foliage. What we want now is a sturdy plant that will produce flowers next winter. Keep the buds pinched off, therefore, and apply a rich mulch or liquid food. A little lime water is also advisable, as it prevents the soil from souring.

If it has not already been done, sow the seed of a number of forcing plants for next winter, such as Antirrhinum, Salpiglossis, Campanula, Heliotrope, Scabiosa, etc. These should be carried over the summer in 4-inch pots in a frame or sheltered place, except the Campanula, which must be kept growing and repotted as often as necessary.

While you will not get any exhibition blooms from May propagation, you will get good sized blooms with moderate stems if you strike a batch of Chrysanthemum cuttings now. These flowers will be found to keep better than the extra large blooms.

Start standard forms of the various flowering plants. The Geranium, Heliotrope and Fuchsia are popular for indoor decoration, as well as for garden use. Place a stake in the centre of the pot and keep the main shoot tied to it. Remove all the others. Keep this shoot pinched back, but allow it to spread when it reaches the required height. Cyclamen and Primula in the frames should not be neglected; shade them with a slat trellis and spray frequently. Also keep potted on as required. Make each shift into the next size larger pot, and do not transplant from a 4-inch pot into a 7-inch one to save time!

Schizanthus, Clarkia, Celosia, Petunia, Arctotis, Lavatera, Godetia, in fact practically all annuals, make excellent pot plants and can be raised during summer in the greenhouse. Sow the seeds now and if you handle the plants properly you will have an abundance of bloom in late fall and early winter. Use the continuous flowering type similar to those named above, and not croppers, such as the Aster.

Plant Bouvardia outdoors now in a rich, well prepared soil. This blooms in late fall and early winter and is a very easy plant to handle. It is subject to green fly; spray every two weeks as a preventive. Pot the plants in early fall and bring them into the greenhouse.

Because the Amaryllis has ceased flowering do not neglect it. This, its growing season, is what determines the quality of next season's flowers. Feed frequently with liquid manure.

Summer-flowering bulbous plants, such as Achimenes, Gloxinias, etc., should be fed freely with liquid manure during the flowering period, as it is not advisable to have this kind of plant in a very large pot.

Keep most of the Orchids well supplied with moisture; this is their growing season. Those that are resting should be removed to another compartment where they can be kept moderately dry. Proper shading is very important now; a few hours of strong sunshine on young shoots will be ruinous to them.

Parsley for next winter should be sown in the frames at once. Mark off the beds in 12-inch squares and sow several seeds at the intersection of each line. Later thin out to one plant.

Although they can be sown outdoors, I always consider it better to sow the seeds of the various late vegetables in a frame. The young plants are then transplanted when they should be; if sown outdoors they often spoil in the seedbed. This refers to late cabbage, cauliflower, celery, kale, etc. Sow the seeds in drills about four inches apart and when the plants are large enough to handle, dibble them in a prepared bed about four inches apart each way. Shade them for a few days and spray the tops frequently.

Plants in late graperies and peach houses should be thinned just as soon as the fruit is large enough—after the "stoning" process. If thinned before that time some of the fruit is liable to fall off.

More failures with fruits under glass can be attributed to lack of regular pinching back than to all other causes combined. This is work that must be done regularly, not at any convenient time, and it must be persistent. Never let the laterals get so large that you have to use a knife in order to remove them; the tip should be small enough to be removed with the thumb and first finger.

Make arrangements now for next winter's supply of proper soil. Get good top soil; if it has a good turf, all the better. Stack it up, using about one quarter manure and about one twelfth lime. Bone can be added also, or can be added when the soil is used inside. Turn this compost several times during the summer so as to thoroughly incorporate the manure and other elements with the soil.

New York. W. C. McCollom.

Sow Bug Eradicators

THE sow bugs (also called woodlice and pill bugs) are sometimes a serious pest in greenhouses. I recently came across a badly infested Carnation house in which the sow bugs were actually eating the roots, injuring the plants. The grower, who had exhausted all the common remedies, such as pouring hot water in the cracks where they hid during the day, was at his wits' end to rid his house of the pest. Commonly these sow bugs confine their depredations to decaying vegetable matter, molds and similar material present in damp soils, but they sometimes—as in this case—attack the living plants even going so far as to attack the foliage. They also attack mushrooms.

In small greenhouses the application of boiling water—filling the cracks where the sow bugs hide during the day—has been successfully used, but it is not practicable in large establishments. Another remedy which has been used with good results is to cover the wet surface of newly sliced potatoes with paris green, placing them where the sow bugs seem to be.

In large establishments the application of hydrocyanic acid gas is an effective remedy, but on account of its highly poisonous qualities it is dangerous to use. Carnations can stand as much as one tenth of a grain of 98 per cent. cyanide of potassium per cubic foot for fifteen minutes without material injury to the plants. It penetrates the cracks and crevices quickly and will kill plant lice, but not thrips, nor will red spiders be eradicated at this strength.

When greenhouses are empty they can be fumigated with sulphur—two pounds to 1,000 cubic feet. I always made a practice of doing this in my greenhouse and was never seriously troubled with insects. A thorough fumigation seemed to kill off everything but the white fly, and I think that after I had fumigated the white fly must have gained entrance to the house through the ventilators. But these methods of fumigation will hold the sow bug in check so that no material damage will be done.

Pennsylvania. Harold Clarke.

Your Greenhouse Is Worthy of Your Best Thought

"Who loves a garden loves a greenhouse too.
. . . Strength may wield the ponderous spade,
May turn the clod, and wheel the compost home;
But elegance, chief grace the garden shows,
And most attractive, is the fair result
Of thought, the creature of a polish'd mind."—COWPER.

The majority of LUTTON Greenhouses are owned by people who take a keen personal interest in their gardens. Owners of this type demand *not only* quality and quantity of plants grown in their houses. In addition their greenhouses must beautify their estates and must not offend their sense of sight by developing unsightly yellow rust streaks or other defects.

LUTTON V-Bar Metal Greenhouses are guaranteed absolutely *rust proof*. Every metal part, down to the smallest bolts and screws, is protected by a preservative metal coating.

Note the wide spacing and compactness of the rust-proof V-Bar supporting members in the adjoining view; also the absence of shadow-casting members at the eave line. This construction permits every available sunbeam to reach the plants. Glass breakage is provided against by avoiding direct contact between glass and metal. Condensation is also provided for.

Horticultural architects and engineers design LUTTON Greenhouses, insuring that they will harmonize with adjoining structures and take full advantage of local conditions. This part of LUTTON Service is particularly appreciated by discriminating purchasers. There are no two LUTTON Greenhouses exactly alike, yet every one is admirably adapted to its surroundings. Let us send you views of our recent work. Also a small section of a rust-proof metal V-Bar.

WM. H. LUTTON CO.
263-269 Kearney Ave., Jersey City, N.J.
Builders of Modern Greenhouses of all Types and Sizes—Conservatories— Sun Parlors— Glass Gardens—Cold Frames.

A Garden of Gladioli

for the cost of a few blossoms at the florist's. The most satisfactory collection ever offered at any price.

40 America, the best light pink.
30 Mrs. Frances King, flame-scarlet; very striking.
10 Baron Hulot, beautiful violet-blue.
10 Glory of Holland, very fine large white.
10 Niagara, the very best yellow.

100 BULBS POSTPAID $2
A Half Collection, $1.15.

Satisfaction guaranteed or your money back. Send for our list of low prices on Asters, Gladioli, Phlox, Iris, and other plants.

ASTERDALE GARDENS
203 Stambaugh Building, Youngstown, Ohio

A Greenhouse All Your Own for $98.00 and Up

Perhaps you are one of the many thousands of men and women who love gardening, but indulge in it only during the spring and summer months.

You may not know that there are many pleasing and practical styles in our Duo Glazed Sectional Greenhouses at from $98 up.

These Greenhouses are fitted with

Duo Glazed Sash

a sash with two layers of glass and air space between, excluding cold and retaining warmth.

Our sectional unit construction has brought down the cost. Erection is easy and economical. Or you can produce blooming flowers and all manner of vegetables from one to two months ahead of the usual season by using hot-beds and garden-frames, covered with Duo Glazed Sash.

Catalog *sent anywhere upon request*

Callahan Duo Glazed Sash Co.
1321 Wyandot St.
Dayton, Ohio

Making Greenhouse Possession Easy For You

ABOUT all building, there is generally a series of delays, vexations and disappointments such as to make one think twice before getting into them. But such are not the conditions with greenhouses we build. In the first place, you get the advantage of our quarter of a century greenhouse building experience. Second, if you wish we will assume entire responsibility for all phases of the work—the worries, the vexations are exclusively our part of it. To get an idea of the kind of greenhouses we build, and the breadth of our building service, send for our new catalog. It might well be called a greenhouse guide book.

Materials are advancing—now is the time to place your order.

Hitchings and Company

General Offices and Factory, Elizabeth, N. J.
NEW YORK: 1170 Broadway BOSTON: 49 Federal Street PHILADELPHIA: 40 S. 15th Street

Farr's Hardy Chrysanthemums

In the late autumn days, when most all flowers have succumbed to the approaching winter, how cheering it is to see one flower that is a blaze of glorious bloom. My Chrysanthemums bloom in late summer and early fall, and some of the more hardy varieties bloom until snow falls.

At that time of the year the trees have lost their foliage and fruits; the once green grass is now a faded, lifeless gray, but wherever you find a bed of Farr's Chrysanthemums you will see a riot of lively colors. Rich purples, deep reds, golden yellows and clear whites produce an effect which seems to prolong the joyous days of summer and to make the winter seem shorter.

As Chrysanthemums planted now will make strong, blooming plants this fall, I am offering to readers of Garden Magazine and their friends, an opportunity to get some of these fine plants, so they may have a blooming garden this fall. The prices are low and you will be pleased with either collection given below.

Farr's Named Collection

Alma. Very large, beautiful soft pink.
Amelia. Golden yellow, tipped garnet.
Bohemia. Deep golden yellow.
Dinzulu. Very large flowers of clear pink.
Elva. Large; white and shaded blush.
Excelsior. Large-flowering, yellow.
Gladys. Flesh white and yellow.
Irene. Very early flowering; white and flesh.
Kadar. Delightful bronze-red.
Klondyke. Very deep yellow.
Ladysmith. Medium sized; light pink.
L'Argentuillais. Deep chestnut.
Lilian Dotty. Beautiful shell-pink
Lodi. Large flowers; citron-yellow.
Lyndhurst. Pleasing scarlet-bronze.
Myers Perfection. Large; sulphur white and yellow.
Nio. Small flowers of white and salmon.
Paterson. Old-gold with darker shading.
St. Croats. Creamy white and shaded pink.
Zenobia. Very early; golden yellow.

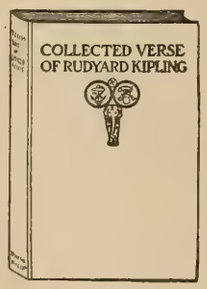
I will send you this entire collection of Twenty Varieties for $2.50

If you would like to have me select a collection for you I will send you **25 Hardy Chrysanthemums of my selection for $2.50.** If you take advantage of this bargain you get five more plants than in the other offer.

Farr's Hardy Plant Specialties

If you do not have a copy of the 1915-16 Edition of this useful book, send for one. You will find it very helpful in planning your hardy garden. It is illustrated with 24 full-page engravings, 12 in natural color. All desirable hardy plants are listed—Irises, Chrysanthemums, Phlox, Delphiniums, and the world's largest collection of Peonies in over 500 varieties. My book gives valuable information for every lover of beautiful growing things and many helpful hints for planting your garden. Send for a free copy.

BERTRAND H. FARR
WYOMISSING NURSERIES
104 GARFIELD AVENUE WYOMISSING, PENNA.



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The present edition is designed for a gift book. It is bound artistically in limp brown leather, and boxed.

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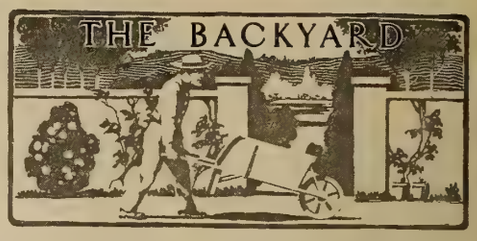

Protecting With Cheesecloth

I HAVE just read the article in the January magazine by Ethel A. S. Peckham about cloches, etc., in which she lays emphasis on cheesecloth protection. I also use cheesecloth, but in a way she has not suggested.

I live on a sandy plain 20 feet above tidewater and 200 feet from it, in the little end of a big funnel where the wind always blows and there are no windbreaks, and yet I have a garden! In early spring I can start almost any plant, but after June 15, though there is plenty of moisture in the ground, I find the top two inches of soil just a fine, dry, hot dust, and it is impossible to give sufficient water to last from sunrise to sunset. No seed will come up unless it can be planted two inches deep, yet winter beets and many other small seeds must be planted during late June or July. Any ordinary screen *will* blow down.

When we built I saved all the shingle binders. I take four of these and make a frame, nailing two on top of the other two. Then I cover the frame thus made with tightly stretched cheesecloth. This brings the surface of the cloth about two and one-half inches above the seed bed. Being so low the wind rarely moves them. Each night I wet the soil to the depth of an inch without removing the frames. As soon as the plants begin to show I go out after supper with a sharp, light pitchfork and, backing down the "neutral" ground between the rows, I remove the frames, placing them on the path. Then I gently sprinkle the ground. I leave the frames off all night unless there is indication of wind. In the morning, if necessary, I cover the plants from eight until ten o'clock. Each day I give an increased exposure and in two weeks or so the little roots have reached down the two perilous inches to the moist ground below and my frames are used elsewhere. This scheme enables me to start my own perennials from seed, and has given me much I could ill afford to buy.

Massachusetts. ALICE B. FULLER.

How Many Berries From One Bush?

I AM in the small fruit growing business on a five-acre tract and have had some experience in that line, and consequently had to smile at the statement in an article on "Bramble Berries," by J. R. Mattern, in the January, 1916, issue of THE GARDEN MAGAZINE, in which he says "ten blackberry plants, yielding about 50 quarts," etc. One would do well indeed to get a yield of one quart per plant with proper fertilization and cultivation.

Illinois. M. H. VESTAL.

—Undoubtedly you are thinking in terms of commercial berry planting, where the same field is rarely kept in blackberries so long that the plants get the size required to bear four or five quarts. In my article I was thinking in terms of the home fruit garden, where the blackberries likely will be along the fence or on trellises, and will be more or less permanent fixtures, getting big and sprawling. In a field of commercial blackberries the bushes are about two feet high, rarely three feet, with two to four canes to a bush. In a home fruit garden the bushes will not be like this in two or three years. They will be high—just as high as the fruit can be picked from conveniently. With the increase in height will be a corresponding increase in spread, and a fourfold increase in the amount of bearing cane or wood.

Maryland. J. R. MATTERN.

Aster Yellows and Root Aphis

WE GROW Asters on quite a large scale and some years ago, in two successive seasons, lost almost 50 per cent. of the plants with what is usually termed "yellows." Prior to the years I refer to I had never seen or heard of Aster "yellows" and was therefore quite at a loss to account for the mischief. I was told it was due to the attacks of root aphis and, sure enough, on examining the roots of the diseased plants, I found the roots were literally alive with the bluish-gray insects.

I was not, however, satisfied that they were altogether to blame, arguing that when plants are growing strongly and have not received a check such as might be caused by drought, irregular or insufficient cultivation, they are usually able to withstand or at least grow away from the majority of aphide pests. As our plants had been kept growing steadily from the seedling stage without any suspicion of there ever being a "holdup" in growth, I began to look around for other causes.

On careful examination of the affected plants I observed that the leading, or main, shoots had all the appearance of having been injured, some having almost a burned or scorched look. These central stems became stunted, the side shoots soon overtopping them, but the entire plant gradually lost its rich, green color, the growths in time becoming a distinctly yellowish-green shade, any flower produced being small and often only half formed. This, therefore, led me to look for insects, and the tarnished bug (Lygus pratensis) was found in numbers.

Next summer I began spraying the plants once a week, starting when the plants were about three inches in height and continuing until they were in good flower. The results were beyond my most sanguine expectations—as we do not now lose more than one per cent. of our plants. I use kerosene emulsion, adding one heaping teaspoonful of arsenate of lead to each gallon of the diluted emulsion.

Our emulsion is prepared by combining two gallons of kerosene and half a pound of whale oil soap with one gallon of water. The soap is dissolved in boiling water and then poured, while still boiling hot, into the kerosene. Be careful to keep it away from the fire. The mixture is then thoroughly churned for at least five minutes, using a force pump. By this time the mixture has become of the consistency of thick cream. This stock solution will keep indefinitely. For use, dissolve one part in fifteen parts of water, adding one teaspoonful arsenate of lead to each gallon when ready.

In some sections the tarnished bug also plays havoc with Dahlias, Antirrhinums and Marigolds. So get after them with the kerosene!

Pennsylvania. GEORGE W. KERR.

Why Dahlias Do Not Bloom

THE principal reason that Dahlias do not bloom is that the tubers are planted too early. In the fall of 1913 I plowed up some ground that had not been used for gardening purposes for more than fifteen years, turning under the growth of goldenrod and weeds, but not adding any manure. The soil was an ordinary clay loam.

The tubers were planted about two and a half feet to three feet apart, in rows wide enough to culitvate with a horse, planting commencing the last week in May and continuing until June 30. Horse cultivation was given on July 4th, the soil having been hoed twice by hand.

In this latitude, the summers are really too hot for Dahlias; we must either plant late or plant early and in July cut down all the growth. The Dahlia blooms only on soft green, succulent stems, and you cannot get this growth by early planting. The stems get hard and woody and the flowers, if any, are no good.

I have found my best blooms on green plants from cuttings. This is the English method of growing. The cuttings are taken in February and rooted in a cool greenhouse, the old clump being thrown away.

Manure, if used, should be applied as a mulch after the buds are setting. Disbudding also helps to produce finer and larger blooms.

Ohio. JOHN D. GRIGOR.

Farr's Dahlia Offerings

May and June are the months for planting Dahlias and so that you may have some of these fine flowers in your garden, I am offering to the readers of Garden Magazine, and their friends, a collection of each of the several classes.

Cactus Dahlias

	EACH
Countess of Lonsdale. A blend of amber and salmon-pink	$ .25
Kalif. Huge flower of bright scarlet	.75
Rene Cayeux. Early blooming. Rich geranium-red	.25
Mrs. Henry R. Wirth. Intense fiery scarlet	.35
Duchess of Marlborough. Delicate silvery pink	.50
Miss Stredwick. Soft yellow and deep pink	.50
Rev. Arthur T. Bridge. Yellow and rose	.25
Rev. L. W. Jameson. Bright mauve pink	.35
Rheinischer Frohsinn. White and carmine	.75
Wodan. Salmon-rose and old gold	.35
	$4.30

This collection of 10 Cactus Dahlias for $3.85

Decorative Dahlias

	EACH
Delice. Glowing rose-pink	$ .25
Mrs. J. Gardner Cassatt. Pleasing mauve-pink	.25
Easton. Free-blooming, Oriental red	.25
Hortulanus Witte. Large flowers of pure white	.35
Papa Charmet. Morocco-red	.25
	$1.35

This collection of five Dahlias for $1.20

Peony-Flowered Dahlias

	EACH
Mme. Curtelin. Large flowers of Oriental red	$ .25
Chatenay. Light crimson and salmon	.50
Dr. Peary. Rich mahogany-red	.35
Geisha. Golden yellow and scarlet	.35
Queen Wilhelmina. Pure white	.25
	$1.70

This collection of 5 varieties for $1.50

Collarette Dahlias

	EACH
Cocarde Espagnole. Large flowers of red and gold	$ .35
Rheinkrone. White and mahogany-red	.50
Maurice Rivoire. White and Ox-blood red	.25
Goldstern. Red and golden yellow	.25
Grandpapa Charmet, velvet crimson and white	.25
	$1.60

This collection of Collarettes for $1.45

Single Dahlias

	EACH
Jack. Brilliant light crimson	$ .25
Wildfire. Vivid light scarlet	.15
Mrs. Joynson Hicks. Pale buff and crimson	.50
Pink Century. Large flowers of delicate pink	.50
Fugi San. Rich orange-yellow	.50
	$1.90

This collection of 5 Singles for $1.75

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Send your order in today, for at these prices they will go quick—and the first orders are filled with the best tubers.

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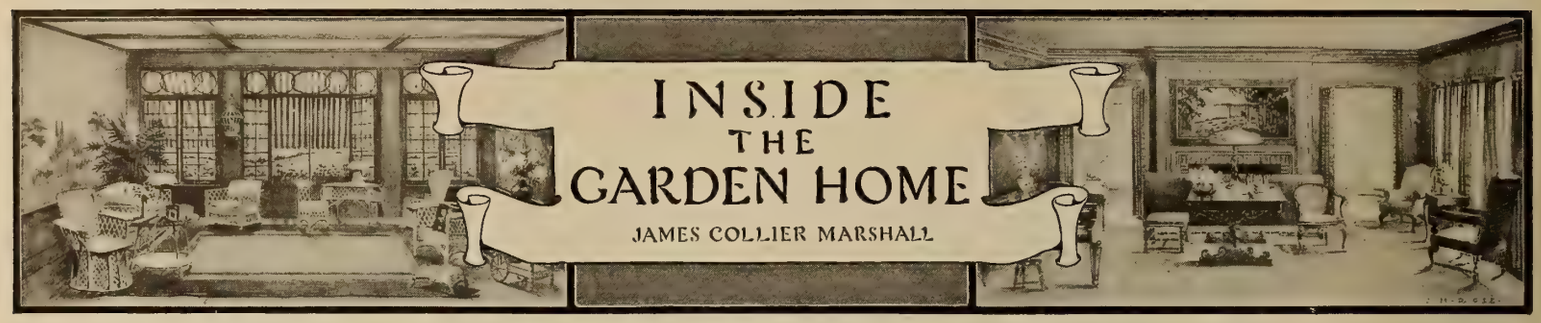

Combining Furniture Types Successfully

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

There is distinction in this teak stand with marble top. 12″x16″x32″ it costs $10.00

THE question most frequently put to the professional decorator is whether he considers the period type of decoration the only correct one for general use. There is nothing harder for him to answer than this as his reputation as an artist is at once placed on public trial. From the viewpoint of the Purist in Art there can be no choice from the period type, but the really great artist in decorative scheming knows that pure period furnishing, however beautiful, is cold and unresponsive and can never be made to seem homelike, because no pure type ever allows the expression of individuality, that necessary personal touch that vitalizes and makes unique a scheme otherwise entirely correct.

The interesting part of this is that the cleverest and most artistic decorators have all, at some time or other, been Purists in style, having reached their present state through much travail of soul over the cold results of their labors in the pure types, realizing at last that the most satisfying decoration is one where the type or period is diversified and given point by the introduction of another kind of similar characteristics.

For example, in a drawing room I have seen where the general design is Adam, there were harmoniously grouped with the slender legged exquisitely painted satinwood furniture, a cabriole legged Chippendale armchair, lacquered an old gold and brown very like the colors of the satinwood, and a delicate shield backed Hepplewhite side chair of mahogany. Now, to the Purist this would have been inexcusable, but, as a matter of fact, it was beautiful in effect, because the similarity of colors made the Chippendale chair pleasing while uniformity of line was responsible for the consonance of the Hepplewhite piece, and both lent distinction to the whole because they relieved the scheme of deadly sameness in line and color.

There is a drawer revealed when the fourth leg of this adapted Adams console table is drawn out to support the folding top for cards or tea. Price $30.00

Thus it may be said that different types may be combined most delightfully if the different articles have some salient point in common.

Of the several good looking pieces pictured on this page, there are two pieces that are cater-cousins, so to speak, in points of resemblance. The teak wood telephone stand might very nicely be used in the same hall with the folding top mahogany table of adapted Adam's type designed for console use, because of their dark color and severe straight lines. It should be added here that an oblong vertical mirror of mahogany of the same type is necessary to complete the good looks of the console table. The brass vase shown costs $5.00.

Apropos of mirrors, the antique gilt one illustrated here is an exceptionally fine one and is at its price of $50 a great bargain to some one looking for such a piece to use with their early American treasures. It is in good condition and will not long be awaiting an appreciative owner. Not less interesting, if not old, are the arm chairs shown on this page, the one at the left being covered with a rich colored wool tapestry, while the other is upholstered with cretonne. Both are excellent living room pieces, though the last named required a special setting to show off its type effectively.

Here is a great bargain at $50.00 for some appreciative lover of Early American antiques

A good deal might be said about the selection of chairs for the living rooms of the house. We allow ourselves too little leeway in this respect. A lounge, a wing chair, a stuffed one, and one or two prim looking side chairs compose the list of seats in the average livingroom. The only reason for this condition is our hesitancy in departing from the usual, a fault that is easily corrected.

Seldom does one find for $65.00 so fine looking a chair as this one upholstered in rich colored wool tapestry. It is ideal for the living room

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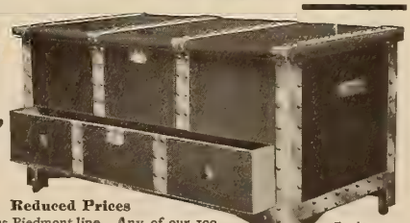

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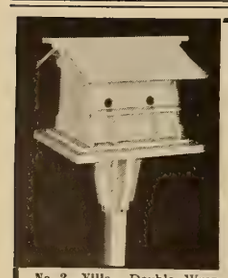

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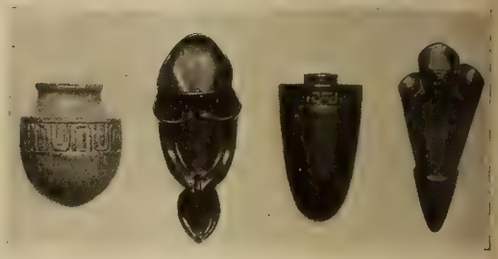
Vases and Pots for the Summer Porch

NOTWITHSTANDING the bashfulness of spring this year, there is no indication of its lagging in the shops where articles for spring and summer floral arrangements are displayed. Never before have so many different materials and designs been gotten together for this purpose, nor more good looking or generally effective.

Of these interesting new patterns none are more attractive than the vases of very heavy colored glass intended to hold long stemmed coarse flowers and of a size to sit on the porch floor, the steps or the loggia. The one illustrated here is an excellent example of these, being of a lovely emerald green that not only emphasizes the tints of the blossoms it holds but lends color to the porch floor that is too frequently drab and uninteresting. This vase is 12 inches tall and costs $10.



This heavy vase comes also in clear glass in many shapes and sizes at various prices.

Not less attractive are the Fulper pottery urns and wall pockets to be found, some of which are shown here.

The urns are especially good. The wisteria and chinese blue one at the left, 10 inches tall, costs $4. The other in chinese blue and mahogany 8 inches tall is $3.00.

The pockets come, brown, green blue and gray, in many shapes. From left to right these are as follows:—6½ inches, $2.50; 11½ inches, $2.50; 8½ inches, $2.25; 10½ inches, $2.25.

Then behold the latest thing in pots—the silhouette! This dainty design comes in four sizes: 5 inches, 6 inch, 7 inch and 8 inch, at $2., $2.50, $3, and $3.75.

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Two articles for porch and table made by Mr. Kain are here illustrated. On left—Flower Vase, 14½ inches high, quartered oak, hoops of solid brass. Price $4.75 delivered. On right, Flower Tub for standard size flower pot. Quartered Oak, $2.75, Mahogany, $3.50. Solid brass hoops.

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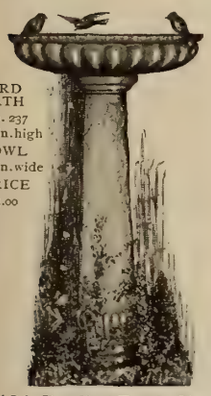
BIRDS and FLOWERS



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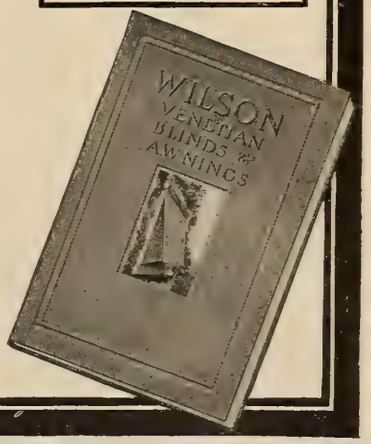

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Keeping up the Lawn Mower

THE "big three" that control the destiny of a lawn are the hose, the roller, and the lawn mower; and the first two of these are absolutely dependent on the last, while the last can produce results independently of the other two.

When a mower rattles it means that it is being abused. Get a screwdriver and tighten up the screws that control the bearings. Get out the screw and adjust the lower blade. By gentle taps push the blade either backward or forward so that it comes in even contact with the revolving blade. Then tighten the screws. Dull knives in adjustment will do by far better work than sharp blades badly placed.

The rollers can be adjusted by screws at the side

When it is desired to lengthen or shorten the cut of grass it can be quickly done by adjusting the bolts that hold the roller in place, and either raising or lowering the roller.

When taking the mower over rough places, either lift it or turn it over and push it, and never drag it after you, making the blades

Always push the mower over rough places

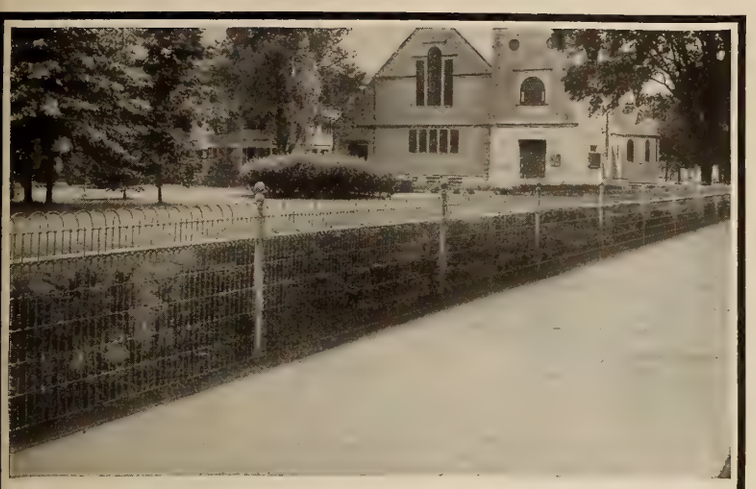
whirl around uselessly. Any old kind of oil won't do for the mower; poor oil gums very rapidly.

Once or twice during the season take off the wheels and remove the accumulated grime

The grass catcher is useful when the grass is long

and also scrape out the cogs. When ready for winter storage give it a final cleaning and grease the parts liable to rust. Pack it away in a dry place.

Massachusetts. L. J. DOOGUE.



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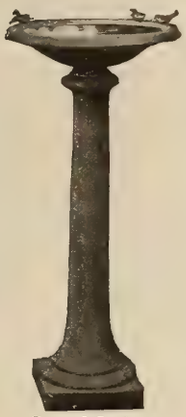

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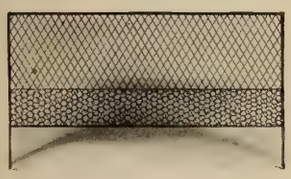

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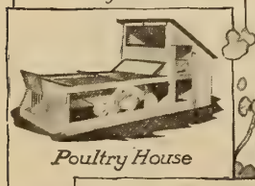

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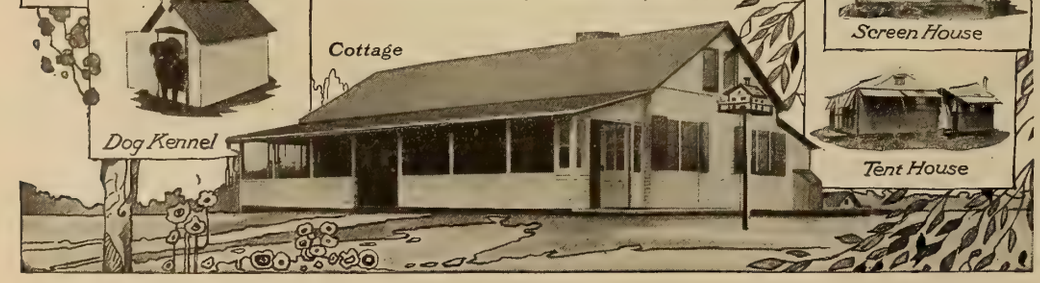

Cottage

Welcome the Thrushes, Robins and Bluebirds

THAT thrushes—the group of birds in which is included robins and bluebirds—do a great deal of good and very little harm to the gardener, is the conclusion reached by investigators of the United States Department of Agriculture. Altogether there are within the limits of the United States eleven species of thrushes, five of which are commonly known as robins and bluebirds. The other six include the Townsend solitaire, the wood, the veery, the gray-cheek, the olive-back, and the hermit thrushes.

The robins and bluebirds nest close to houses, and even the shyest of the other species are content with the seclusion of an acre or two of woodland or swamp. For this reason the thrushes are among the best known and most carefully protected of native American birds, and at times their numbers become so great that it is feared they will do much harm to crops and fruit. The recent investigations, however, show that there is very little ground for this fear, but that, on the other hand, they destroy such a vast number of insects each year, that it is probable that without them many crops would suffer serious damage.

The robin is probably the best known. It has been frequently accused of destroying fruits and berries, but it has now been ascertained that this only occurs in regions that are so thickly settled that there is no wild fruit. In some years the bird is a great pest in the olive orchards of California, but it is probable that they are driven to the orchards because of the scarcity of native berries at these times. Where wild fruit is available, the birds seem to prefer this to the cultivated varieties.

The bluebird, like the robin, is very domestic, but unlike the robin, it does not prey upon any cultivated product or work any injury whatsoever to the fruit grower. During the fruit season, in fact, five sixths of its food consists of insects. Therefore, encourage the bluebird to nest near your house by placing a convenient box in which it may build its home.

A detailed description of the habits of the robins and bluebirds is contained in Bulletin No. 171 of the United States Department of Agriculture. Bulletin No. 280 takes up the habits of the six other species of the thrush group, which are not quite so well known. These birds also feed principally on insects and wild fruit. Domestic fruits are eaten so sparingly by these species that the damage done is quite negligible.

The bird known as the Townsend solitaire is noted chiefly for its song which is said to be at times the finest of any of the thrush family. It confines itself almost entirely to the mountains and gorges of the far West. The wood thrush, distributed over the eastern part of the United States, is a frequenter of open groves and bushy pastures, and also is noted for its sweet song, especially in the early evening. It does not nest in gardens or orchards, and is seldom seen about farm buildings, so that many people, familiar with its song, would not know the bird by sight. The wood thrush consumes such harmful insects as the Colorado potato beetle and white grubs. The fruit which it eats it usually picks up from the ground instead of taking fresh from the tree; there is, therefore, no reason why it should not be rigidly protected.

Machinery for Trenching

SOME form of trenching machinery will prove a profitable investment, according to engineers in the United States Department of Agriculture, if the landowner has more than 100 rods of tile drain to lay in soil that will require picking but which is free from rock. Ditching plows that can be purchased for $18 to $20 will prove of material assistance in such work. If as much as 1,500 rods of tile drain are to be laid, the landowner will be justified in purchasing a horse-drawn plow at $250 to $300, provided the soil is free from rock and large roots. The installation of 5,000 rods of drain tile will justify the purchase of a power-driven trenching machine for $1,500, provided the machine can subsequently be sold for one-half its original cost.

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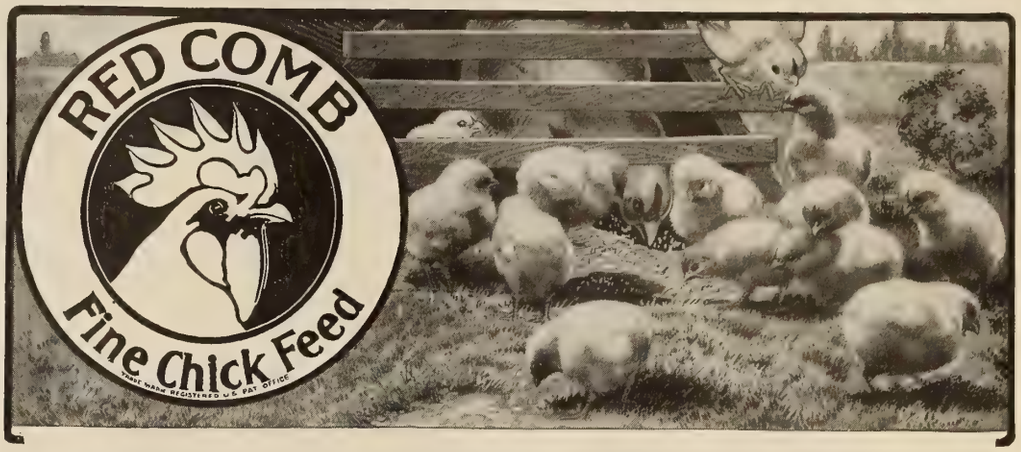

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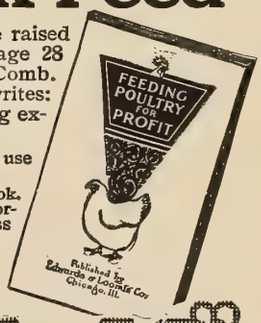

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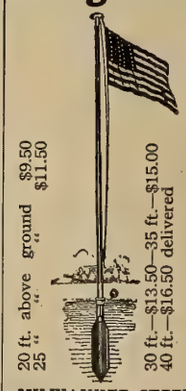

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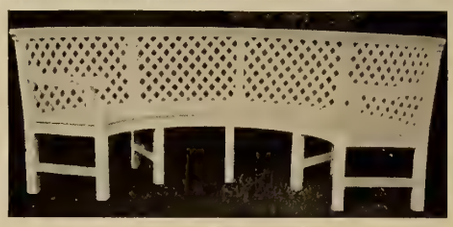

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CHRYSANTHEMUMS. Special offer Pompon, and Large Flowering early sorts, in upwards of 75 varieties. We will supply 15 plants in distinct sorts for $1.00. Descriptive price list free on application. Scott Bros., Elmsford, N. Y.

NATIVE EVERGREENS—Balsam Fir, Arbor Vitae, American Spruce, White Pine and Hemlock, 6 to 12 inches, $5.50 per 1000. 5000 for $25. Also transplanted evergreens. Write for price list. The James A. Root Nurseries, Skaneateles, N. Y.

PLANTS AND NURSERY STOCK—Continued

ASTER PLANTS, Micado Rochester, white, pink, violet. Astermums, white, pink, lavender. Royal Stripe. Ruby Stripe. Crego pink, rose, lavender. Autumn Glory. Enchantress Pink. Rose, violet, pink, and crimson King. Vick's Branching, white, lavender, pink (Semple's), carmine, purple. Lady Roosevelt. Lavender Gem. Royal purple. Queen of the Market, mixed, (ready May 20) per 100, $1.25. Hardy asters, white, pink, blue, per dozen, $1.00. The following plants in 2 inch paper pots, Zinnias, (Benary's Giants) mixed, Sweet William, mixed, 4 o'clocks, mixed. Little Gem Sweet Alyssum. Cosmos, Lady Lenox, white, pink, per dozen, 50c. The following Gladioli in 3 inch pots. Peace, War, Pendleton, Princepine, Glory, per dozen, $2.00. America, Augusta, Hulot, King, Panama, per dozen, $1.50. The following plants in 4 inch pots. Cannas, King Humbert, Florence Vaughn, per dozen, $2.00. Dahlias, Livoni, Lyndhurst, Douzon, per dozen, $1.50. Hollyhocks; double rose, white, black, yellow, maroon, pink, red and Alleghany fringed, per dozen, $1.00. Oldbrick Farms, Orwell, Ashtabula County, Ohio.

MONADNOCK NURSERY, Established 1909, East Jaffrey, New Hampshire. Specialty, Hardiest Northern Grown Japanese Iris, large 7 year clumps, $3.00; strong clumps, 25 cents each. Hardy Northern Mosses and Ferns, 10 cents each. Hybrid Perpetual Roses, 15 cents. Plain Pricelist of Evergreens, Shrubs, Perennials, etc., on request.

THE GREAT WALLACE CANNA. Gigantic yellow flowers, wonderful bloomer. Your garden needs this gem. Strong plants 15c. 2 for 25c, postpaid. Limited stock. Order now. H. S. Tillotson, 5904 Ellsworth St., Phila., Pa.

PANSIES, The Big Giant Flowering kind $3.00 per 1000, in bud and bloom $5.00 per 1000. A trial order will convince you of the superior plants and fine strain. Cash please. James Moss, Wholesale Grower, Johnsville, Pa.

LARGEST IN THE WORLD

173 ACRES

WORLD'S BEST DAHLIAS

The above is a natural color reproduction of **The World's best Red Dahlia Minnie Burgle**, one of the 631 varieties selected from the more than 2000 of the best from all sources, grown by us the past year and accurately described in our catalogue, "The World's Best Dahlias." It is more than a catalogue, with six pages devoted to classification and complete cultural directions. It is a book of reference and instruction, with 38 handsome photo-engravings showing the most distinct types in all classes of this most beautiful and popular flower. **Write today for free copy.**

You Wish to Excel—Try These

Minnie Burgle—The world's best red, 50 cents.
Dr. Tyrrell—Immense size, rich golden bronze $1.50.
John Wanamaker—Awarded first prize for best pink Dahlia, any class, by American Dahlia Society, $1.00.
Melody—Rich canary yellow tinting to creamy white at tips, 40 cents.
Old Gold—Old gold shading to orange at base. A beautiful Autumn shade with long slender, but stiff stems, 50 cents.
Richmond—An improved Jack Rose, better form, better color, better stems. The ideal crimson, 50 cents.
The six new Decorative Dahlias for $4.50

Our Suggestion in Quality Cactus Dahlias

Bridal Robe—The best White, very large, stiff stems, 50 cents.
Electric—Deep canary yellow, tipped snow-white; effective yet chaste, 50 cents.
Lustre—Vivid vermilion, large size, very free, 50 cents.
Magpie—Varies from rich maroon to delicate pink (a full page natural size photo. in our catalogue), 50 cents.
Stability—Beautiful carmine rose; long slender incurved petals, 50 cents.
The Imp—Darkest of all, maroon shaded black, long slender incurved petals; a model exhibition variety of the spider type, 50 cents.
The six exhibition quality Cactus Dahlias for $2.50.

Two Wonderful New Paeony Dahlias For $1.75

F. R. Austin—Pink, shaded carmine and tinted primrose, $1.00.
Mrs. Wm. Kerr—Cream, suffused and tipped pink, very fine, $1.00.

Five New Giant Century Dahlias—Cream Century, 50 cents, Mrs. Wendel Reber, 50 cents, Geisha Century, 50 cents, Mrs. Jos. Lucas, 50 cents, Josephine, $1.00. The set for $2.50.

SPECIAL OFFERS		
	12 Beautiful Cactus Dahlias, all named, our selection	$1.50
	12 Superb Decorative Dahlias, all named, our selection	1.50
	12 Grand Old Ball Dahlias, all named, our selection	1.50
	15 Distinct Dahlias, all classes, named, our selection	1.50

Peacock Dahlia Farms, P. O., Berlin, New Jersey

Jot it down in Ink

Self Filling, Safety, Pocket and Regular
Types of

Waterman's Ideal Fountain Pen

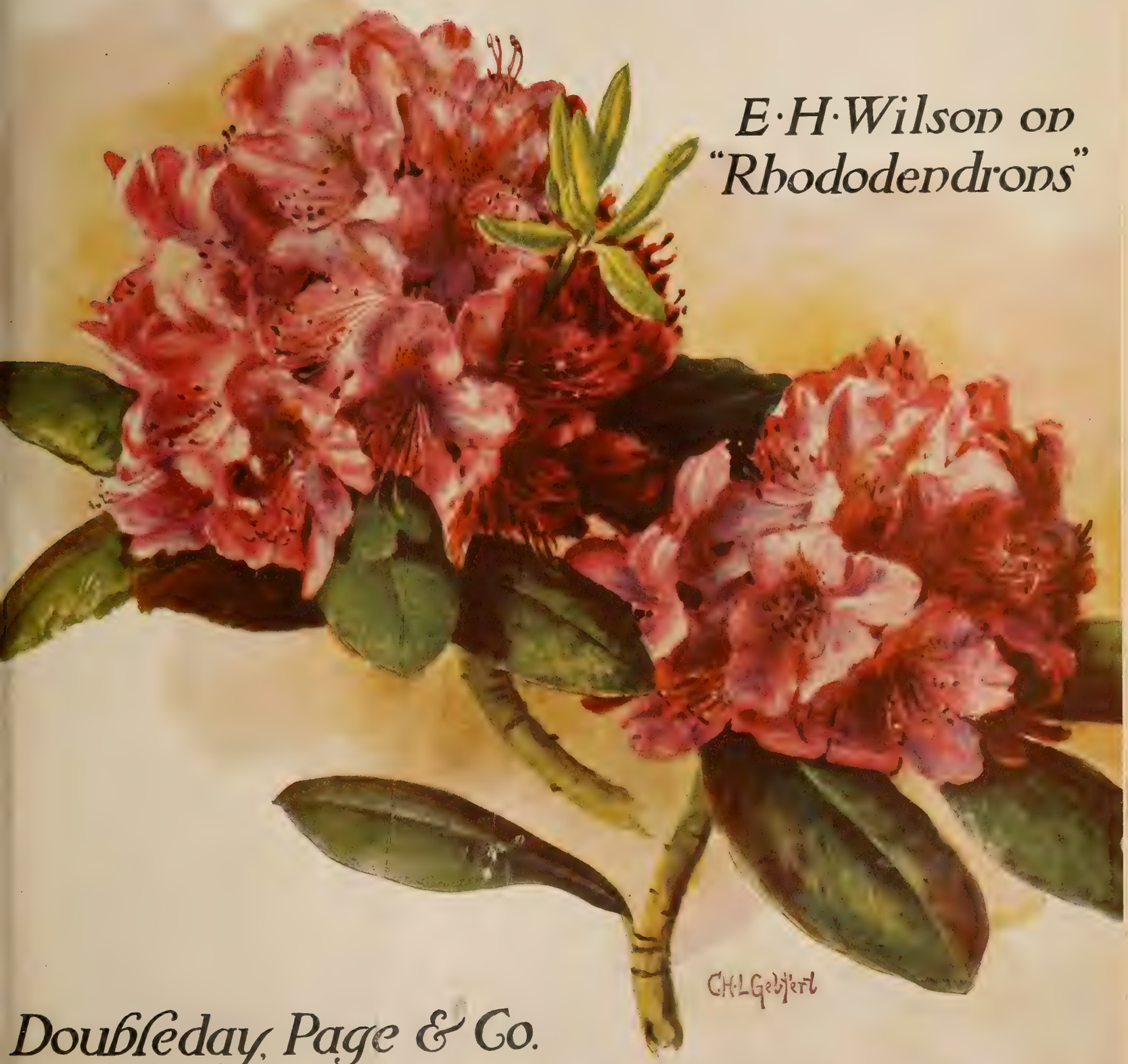
Best Stores

$2.50 to $150.00

THE COUNTRY LIFE PRESS, GARDEN CITY, NEW YORK

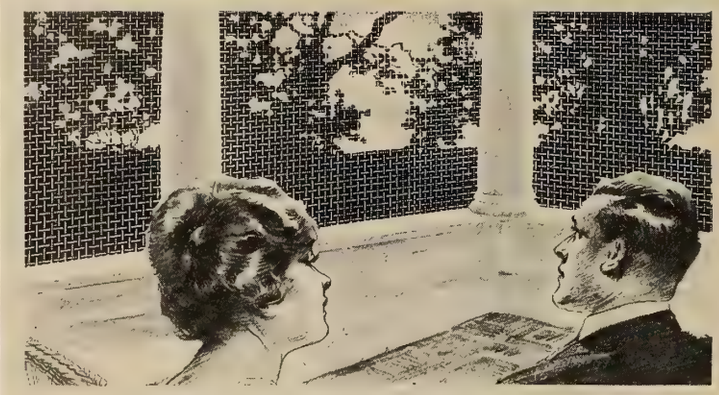
Vol. XXIII. No. 5 JUNE, 1916 15 Cents a Copy

The GARDEN MAGAZINE



E·H·Wilson on "Rhododendrons"

Doubleday, Page & Co.
Garden City New York



There Is No "Just As Good" As G. & B. PEARL Wire Cloth —

THE wonderful durability of G. & B. PEARL Wire Cloth as well as its beauty is due to its metallic coating. The composition of and method of applying this coating is exclusive with us and used *only* on genuine PEARL. So—when a dealer offers you something "just as good as PEARL"—he is *mistaken*. It isn't so. There can be no "just as good."

We've thousands of dealers—there's one in your vicinity. Let us give you the name of the hardware merchant who can supply you with genuine G. & B. PEARL. He is *worth* getting acquainted with.

For Permanently Screening Doors Windows and Porches

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Made in Two Weights—Regular and Extra Heavy

The day you screen with G. & B. PEARL you end trouble and expense. No painting—no repairing—PEARL lasts and satisfies. It is the handsomest screen and the cleanest as well as offering least obstruction to the vision.

Look for two copper wires in the selvage and the Round Tag bearing our name on each roll.

They identify the genuine article, and for the sake of screen satisfaction they are worth looking for and insisting on.

There's a hardware dealer in your vicinity who sells PEARL. Drop in and see him.

Write for Free Samples and Booklet.

Address our nearest office.

The Best Hardware Dealer in Your City Sells "PEARL"

THE GILBERT & BENNETT MANUFACTURING CO.
(Established 1818)

Dept. L, 277 Broadway, New York — Georgetown, Conn.
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"Wright" Means Might

In wire fence the name "Wright" stands for durability, sturdiness and sightliness. Such a fence is Wright's.

TRADE "EXCELSIOR" MARK RUST PROOF

which combines all these requisites and, above all, is the best obtainable from the standpoint of freedom from rust and ability to withstand the wear-and-tear of severe weather.

This fence cannot be pulled apart—patent clamped joints keep the wires from slipping or twisting out of position. The finished fabric is dipped into molten zinc which thickly covers every particle with a rust-resisting metal coating.

Ask your hardware dealer for Excelsior Rust Proof Fences, Trellises, Trellis Arches, Bed Guards, and Tree Guards. Write for beautifully illustrated catalog B.

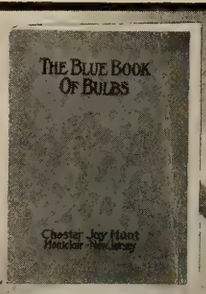
WRIGHT WIRE COMPANY — **Worcester, Mass.**

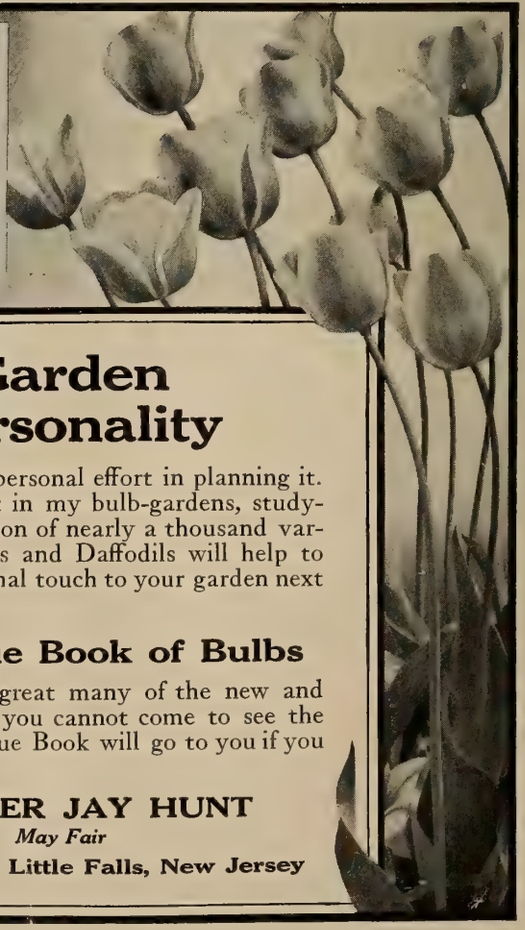
RAIN WHEN YOU WANT IT

Cornell Systems of Irrigation

ILLUSTRATED BOOKLET ON REQUEST

W. G. CORNELL COMPANY, 45 E. 17th St., New York





The Garden of Personality

requires your personal effort in planning it. An hour spent in my bulb-gardens, studying my collection of nearly a thousand varieties of Tulips and Daffodils will help to give the personal touch to your garden next spring.

The Blue Book of Bulbs

tells about a great many of the new and rare sorts. If you cannot come to see the flowers, my Blue Book will go to you if you write soon.

CHESTER JAY HUNT
May Fair
Dep't A — **Little Falls, New Jersey**

Farquhar's Old Fashioned Flowers

Add Beauty to the Garden

Some of Our Specialties:

	Per Dozen
Canterbury Bells	$1.50
Hollyhocks	2.00
Larkspurs	2.00
Phloxes	1.75

Our collection of Hardy Perennial Plants is one of the most complete in the country.

Our 1916 Garden Annual containing full list of varieties will be mailed on request.

R. & J. FARQUHAR & CO.,
9 South Market Street BOSTON, MASS.

Fill up the vacancies in your rose garden with actual, strong, well-developed plants.

Three Year Old, Hardy, Everblooming Roses

ready for immediate shipment and planting

New Rose "Prima Donna" (Mme. P. Euler). A grand, deep rose-pink flower of fine form, delightfully fragrant and a constant bloomer. Largely used during the past season among the florists for its many qualities, and because of its rich color and especial brilliancy under artificial light. In bud the outside petals are waving.

Strong three year old **roots,** $.75 each, well rooted **plants,** $.50 each, $5.00 per dozen.

Strong Three Year Old Rose Plants

KILLARNEY WHITE and **KILLARNEY PINK,** both of which are too well known to need description here.

RICHMOND, scarlet, cerise, opening freely in all weather; very sweet.

SUNBURST, a magnificent, new everblooming yellow rose, surpassing any heretofore offered. Flowers of largest size with long, pointed buds. The color is very brilliant showing intense shades of orange-copper, golden-orange and golden-yellow. The plants are vigorous, with healthy foliage. By disbudding, this will produce long stemmed flowers.

Strong three year old plants of all four varieties, $.50 each, $5.00 per dozen.

New Carnation, LAURA WEBER. This was pictured among the novelties of the season in the March 1915 Garden Magazine.

In the same issue a writer says: "Laura Weber is a beautiful light salmon-pink, large flower carried on long straight stems."

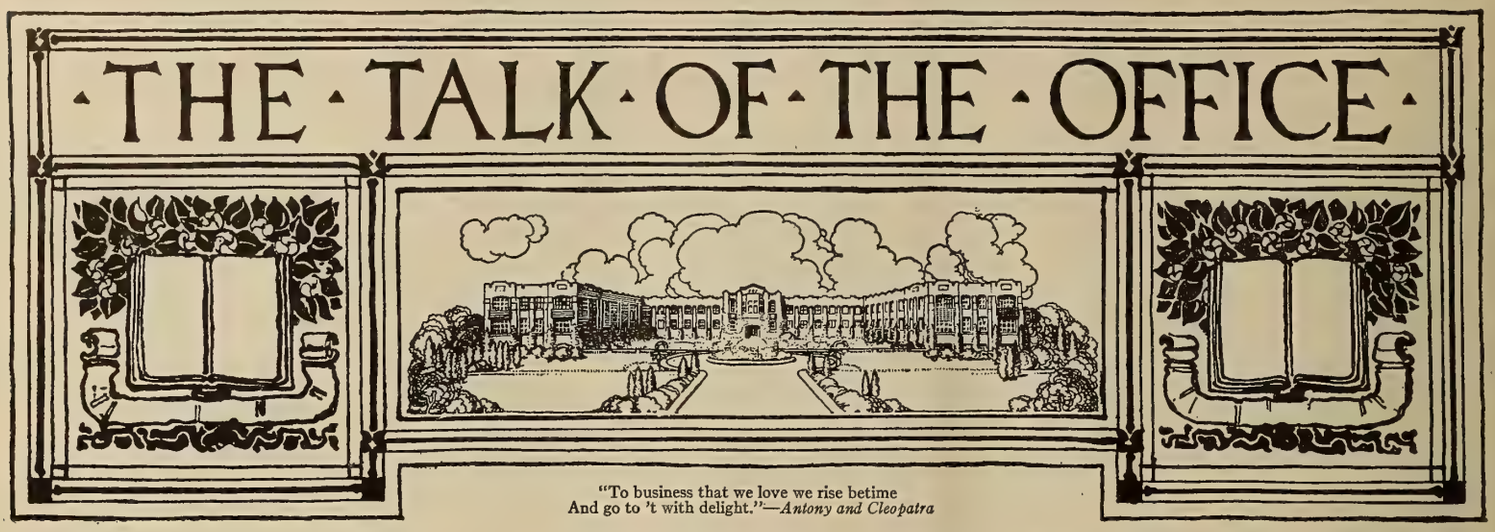
Fine for cut flowers and for table decorations. Planted now will bloom in August. $2.00 per dozen.

New Chrysanthemum, ALEX. GUTTMAN, very early lavender pink, exhibition blooms. $.50 each, $5.00 per dozen.

EMMA, anemone double pompon chrysanthemum, light pink, great oddity. $.25 each, $2.50 per dozen.

Order these novelties **now** as the supply is limited.

101 West 28th Street **GUTTMAN & RAYNOR, INC.** **New York City**



"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

THE HIGH COST OF PAPER AND BINDING

EVERYTHING that goes into the making of a book or magazine has increased in cost from fifty to one hundred per cent. For paper for books and magazines we are paying in some cases nearly double when these lines are written, and it is likely to be higher before these lines are printed. Ink, binder's cloth, glue, and all other materials have within a few months gone up in price in a very unexpected and extraordinary degree, and in our opinion will be maintained at a high level until *some time after the war*.

Beside paying a little more, or getting a little less for the same money, every reader can help by heeding this notice sent out by the Department of Commerce at Washington:

SHORTAGE OF PAPER MATERIAL

SAVE YOUR WASTE PAPER AND RAGS

The attention of the Department of Commerce is called, by the president of a large paper manufacturing company, to the fact that there is a serious shortage of raw material for the manufacture of paper, including rags and old papers. He urges that the Department should make it known that the collecting and saving of rags and old papers would greatly better existing conditions for American manufactures.

Something like 15,000 tons of different kinds of paper and paper board are manufactured every day in the United States and a large proportion of this, after it has served its purpose, could be used over again in some class of paper. A large part of it, however, is either burned or otherwise wasted. This, of course, has to be replaced by new materials. In the early history of the paper industry publicity was given to the importance of saving rags. It is of scarcely less importance now. The Department of Commerce is glad to bring this matter to the attention of the public in the hope that practical results may flow from it. A little attention to the saving of rags and old papers will mean genuine relief to our paper industry and a diminishing drain upon our sources of supply for new materials.

A list of dealers in paper stocks can be obtained from the local Chamber of Commerce or Board of Trade.

(Signed) William C. Redfield,
Secretary.

Almost all magazines (and we presume newspapers) are sold to the dealers, who supply the readers for less than the cost of paper, printing, ink and shipping—in many cases at less than half these costs estimated on the old prices of these materials. The publishers' profits come from the advertisements, and competition to secure these advertisements has become so keen that the percentage of profits from this source has been much reduced. Now that it is costing nearly double to print these same advertisements, what is going to happen?

In our opinion, every one has got to contribute a little: the advertiser, also the subscriber who gets ridiculously low "club prices," and perhaps when we get through this war we may be on a more solid and reasonable basis.

"THE LIGHTNING CONDUCTOR DISCOVERS AMERICA"

If all goes well, the Williamsons' book, "The Lightning Conductor Discovers America," will be published about June 1st. There is more information in this book about the country we all know so well than we ever knew before. Readers will remember how the authors made places of interest in England stand out in that delightful book, "Set in Silver"; Spain in "The Car of Destiny"; Holland in "The Chaperone" and this American story, in the interest of its characters, as well as in everything else, is the most wonderful of all. Here are a proofreader's comments, and proofreaders are never over enthusiastic:

"The Lightning Conductor Discovers America," I think the house should realize, is the very best thing the Williamsons have ever done. Does the Selling Department appreciate this fact? It is a story of much more than usual human interest; it is vital with joy, life, love; it is fiction, and at the same time a truthful description of scenes on Long Island, in New England, and New York State; in that far it is history. But more than this—vastly more—it is a book of mystery; not of the occult, or of the common, ordinary, every-day kind, but mystery of such mystifying mysteriousness as to characters and plot as to rob the reader of the faintest clue whereon to base even an attempted unravelment. Every character is a mystery unto itself and each is engaged in trying to solve the mystery that surrounds his neighbor mystery. After reading more than two hundred pages of the manuscript I know not one of the characters, and am eager for the solution.

PEONIES AT GARDEN CITY

If you are interested in roses, peonies and iris, come to see the Country Life Press gardens in June. Last year we picked 6,000 blooms from 10,000 peony plants in one day. You will find here the collection gathered by the American Peony Society; there are about three hundred varieties, and in a large section of the garden one specimen of each is shown carefully labeled so that every peony of the three hundred varieties can be easily identified. Take your ticket to Country Life Press station, or come by motor to Franklin Avenue just south of the railroad track that leads to Hempstead.

COUNTRY LIFE PRESS IN FILM

We have had a film picture made of Country Life Press at Garden City. One sees the author step off the electric train at our station, walk through the garden, present his manuscript, and have it accepted. It then goes to press, and we follow its course from the typesetter to the completed book, which leaves in the freight car at the door.

The picture shows other interesting things — the farm and our own coöperative grocery store, the little hospital and the trained nurse, the pool, the gardens, and all the rest.

At the moment the film is being enlarged and perfected. It runs to something less than two thousand feet, and is loaned to libraries, churches or such educational institutions as may care for it. Already there are applications received which indicate that it will be shown perhaps a thousand times in 1916 and be seen by many hundred thousand people. If you are interested, will you write to us about it?

MILLIONS OF BOOKS

A good many people who visit Country Life Press (and visitors are always welcome) wonder how a single printing office like ours, which is by no means so large as many, can find readers for so many books. Here is one reason:

The 44 branch libraries of the New York Public Library lent 10,384,579 books in 1915. This seems to show that reading still holds its own with motoring and the movies as one of the most popular amusements. Of these ten million books, 4,415,794 were juveniles. That, too, is encouraging.

JOSEPH CONRAD

We shall immediately add to the Conrad books in blue leather the following volumes:

Nostromo — Under Western Eyes
Mirror of the Sea — The Secret Agent
By courtesy of Harper & Brothers

Tales of Unrest
By courtesy of Charles Scribner's Sons

Make Your Garden Attractive and Interesting at All Seasons

Plant the best stock obtainable of the right varieties

We Have Attained National Reputation with the Following Specialties.

Aconitum (Monkshood). We have a superb collection of these magnificent border plants.

Asters (Michælmas Daisies). The new European hybrids are the finest of Autumn flowers.

Senecio Clivorum. One of Mr. E. H. Wilson's introductions. The finest yellow flowered perennial in cultivation. We offer large flowering clumps.

Astilbes. Complete collection of the beautiful new varieties.

Delphinium Belladonna, **Eremuri, Phlox, Peonies, Montbretias, Lilies.**

We have splendid plants in pots or from the open of **Juniperus** procumbens, **Juniperus** communis, and **Juniperus** Koriensis, three beautiful hardy evergreens for ornamental ground covering.

A large variety of plants for Rock and Wall Gardening

Send for new illustrated general catalogue

THE MOUNT DESERT NURSERIES **BAR HARBOR, MAINE**

What *is* the matter with *your* Lawn?

Why do the weeds creep in?

Why does it suffer from drought.

Nearly every lawn is starved and will respond immediately to our

TAKOMA ODORLESS LAWN PLANT FOOD

a wonderful and permanent invigorator, applied any time. Pleasant and easy to apply. Full directions.

We Ship Your Order by Return Mail by Parcel Post prepaid, within two zones of Washington. To other points east of the Alleghanies, we ship by express prepaid.

Prices, carrying charges paid by us:

10 lbs.,	enough	for	1,000	square	feet,	$ 2.00
50 "	"	"	5,000	"	"	4.00
100 "	"	"	10,000	"	"	6.50
200 "	"	"	20,000	"	"	11.50

OLIVER SMITH, Inc.
Takoma Park
Washington, D. C.

ODORLESS PLANT FOODS FOR LAWNS AND GARDENS

Keep Your Lawn Green and Fresh in the Dry Spells

Your lawn and garden must have careful attention during the hot, dry spells, else they will parch and wither. But they should not be quickly flooded with a stream from a hose which loosens and washes out the roots, exposing them to the sun. The way most like nature's and which gives the least trouble is with a

YOUNG FOUNTAIN

This valuable sprinkler attached to a regular garden hose can be regulated to give a fine, mist-like spray which gently and evenly saturates the ground within an area 30 feet in diameter. It may be safely used on young, tender turf or in gardens of soft earth without danger of washing out roots. The round bottom permits dragging without injury to turf. It is well made and serviceable—will last a life time.

Price $5.00. We ship on receipt of check or money order. Send for free booklet, "Moisture in Cultivation".

Spray Engineering Co., Div. 1
93 Federal St. Boston, Mass.

74-30

Wear and Weather Don't Hurt Empire Red Hose

Most hose should be labeled "handle with care," for that's the way you have to treat it; but it soon kinks and rots and springs leaks in spite of you.

An Empire Hose will never bother you that way. It's better constructed of better rubber than common hose. This rubber is Empire Red Rubber, which has made such a big hit with motorists who use Empire Red Tires.

Empire RED HOSE

Decay is negligible in Empire Red Hose because the red rubber contains no active chemicals. Neither use nor storage lessens the service of Empire Red Hose. It doesn't kink or crack, dry or rot, and it is not affected by sun or water. There is nothing in the rubber to start or help disintegration.

Note the heavy corrugations that protect the hose from wear and tear when going around trees and sharp corners and over rough ground.

Be sure you get Empire Red Hose. No other hose is like it. You have to pay a little more than for most hose, but you could pay twice as much and still find Empire Red Hose economical. If not at your dealer's, write us.

EMPIRE RUBBER & TIRE CO.
Factory and Home Office: Trenton, N.J.
Makers of Empire RED Tires and "Peerless" RED Rubber Tubes

See this trade mark

12 Orchid Plants For $25.

FROM the price of $25. for 12, it is evident there's no real reason why your greenhouse should longer be without its quota of these thoroughly charming tropical creations of Nature.

We have three $25. collections for you to choose from, each including 12 varieties of wondrous beauty.

Then there are three $35. collections, containing 17.

Two of 25 for $50. One of 36 for $75.

With well established plants such as we supply, and a little care and attention on your part, you can grow the Orchid to its fullest perfection. There's no mysterious knack about it. Every plant will repay you a hundred times by its ever interesting combinations of form, color and texture.

As a cut flower, the blooms, in water, stay fresh for days and days.

Our Orchid Book you will find is one of exceptional interest. Our extensive collection is described and fully illustrated. Many of the plates are reproduced in the blooms' exact wondrous colorings. It will be gladly sent at your request.

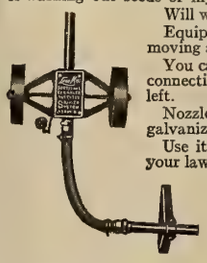
Julius Roehrs Co
Box 10 Rutherford N.J.

Made in sections for coupling together

Lawn Mist—A New Sprinkler

There is a right and wrong way to water grass. This Lawn Mist is one of the right ways. Of first importance, it waters *uniformly* and waters *thoroughly*. So fine is the spray, that the ground absorbs it as fast as it falls, causing it to sink deep down into the soil; consequently inducing the much sought for deep root development.

It can be used on a newly made lawn without danger of washing out seeds or injuring tenderest new growth.



Will water 400 square feet at a time.

Equipped with wheel truck for easy moving about.

You can water around a corner by connecting two lengths, as shown at left.

Nozzle clusters are brass. Pipe is galvanized.

Use it in your garden as well as on your lawn.

For full description send for Lawn Mist Booklet.

15 ft. length with wheels, $8.85. Lawn Mist Junior, 9 ft. on stands, no wheels, $4.85.

THE SKINNER IRRIGATION CO.
219 Water Street TROY, OHIO

SKINNER SYSTEM OF IRRIGATION

LOOKING FOR SOMETHING?

The advertising pages of The Garden Magazine are intended to be equally as serviceable to the readers as the text.

By placing before you the offers of dealers who can supply your garden wants, the monthly editions of The Garden Magazine become practically a living catalogue of offers.

If you don't see in this number advertising of articles in which you are interested, we will gladly inform you where they may be obtained.

In writing to advertisers it is suggested that you mention The Garden Magazine. This is appreciated by the advertiser and helps us.

THE GARDEN MAGAZINE **Garden City, New York**

Special low prices Dutch Bulbs

Good only until July 1st
Order Now!

FREE! Fall Catalog Now Ready Write Today

Hyacinths, Tulips, Narcissi, Crocus, give, for a small outlay of time and money, an abundance of flowers in the house from December until Easter, and in the garden, from earliest spring until the middle of May. Bulbs are grown almost exclusively in Holland, in enormous quantities, and sold at very low prices. Usually they cost double before reaching you.

By ordering from us now instead of waiting until Fall, you make a large saving, get a superior quality of Bulbs not usually to be obtained at any price in this country, and have a much larger list of varieties to select from.

Our orders are selected and packed in Holland, and are shipped to our customers immediately upon their arrival in the best possible condition.

DARWIN TULIPS—We can now supply the magnificent and high priced Darwin Tulips at a great reduction. They are sensational in their beauty and should be included in every garden. They last for many years.

If you wish to take advantage of our very **low prices,** we must have your order **not later than July 1st,** as we import Bulbs to order only. They need not be paid for until after delivery, nor taken if not satisfactory. (References required from new customers.) **For prices on smaller quantities see our import price list, the most comprehensive catalog of Bulbs published, which may be had for the asking.**

A FEW PRICES	Per 100	Per 500
Fine Mixed Hyacinths	$2 90	$14 00
Fine Mixed Tulips	80	3 75
Darwin Tulips—Fine Named	2 25	10 00
Darwin Tulips—Fine Mixed	1 35	6 00
Double Daffodils	1 90	8 75
Narcissus Empress (Monsters)	3 00	13 50
Narcissus Golden Spur	2 40	10 50
Spanish Iris, Splendid Mixture	55	2 00

ELLIOTT NURSERY 377 Fourth Ave., Pittsburgh, Pa.

Hardy Flowers That Really Are Hardy

FLOWERS and folks are a deal alike — the sturdier ones come from the more rugged climates. Coddled folks are not hardy folks. Our hardy flowers are very much un-coddled. They must stand the rigors of our New England winters along with the rest of us.

Those that do stand it and in the spring come up smiling, will stand practically anything within reason that you may ask them to stand.

After any winter when the snow has laid on an extra heavy blanket over our plants, it always seems as if they were particularly fine that spring. Maybe this has nothing to do with it, but leastwise our plants this year were never better.

Every one is full rooted — just the kind that transplant easily and promptly become happy in their new homes.

Let us suggest how to duplicate this hardy garden border

Right now a dozen or more of the fine old time ones come to mind which you surely ought to have. First off, of course, hollyhocks, the wonderful doubles and singles in their riots of color. Foxglove — surely you will want foxglove. And ragged robin or bee balm with its cheery spraying fountains of rich cardinal blooms. Honeysuckle — how could you possibly pass by honeysuckle? Surely you will also want some of the flowers of Shakespeare's garden: thyme, rosemary, larkspur and like old English favorites.

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THE GARDEN MAGAZINE

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If you will send us your name and address, we shall be glad to send you, as they are published, complete bulletins on the use of "Black Leaf 40" for orchard and garden pests. For large spraying operations, "Black Leaf 40" is packed in larger containers. We should also welcome the opportunity to give you free information and advice on your special problems connected with insect pests and their control, for which particular purpose we maintain a Garden Service Department, composed of highly trained men of wide experience. For Bulletins, information and assistance in solving your problems, address this Department.

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THE KENTUCKY TOBACCO PRODUCT COMPANY, Inc.
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The Garden Magazine

VOLUME XXIII JUNE, 1916 NUMBER 5

JUST as surely as the month of June comes round and the wealth of Rose blooms appears in our garden, so also may we expect our readers to bewail the advent of that pest of pests, the rose bug or rose chafer. It is, indeed, one of the most troublesome of all the insects of the garden, disfiguring not only the Rose but equally the Peony and other ornamental plants as well as many vegetables and fruits, especially the flowers of the grape vine, a fact that many garden lovers do not realize, in their own indignation. So serious is the pest from an economic point of view that it has attracted the attention of the Washington authorities and forms the subject of a recent Farmers' Bulletin. Unfortunately, there is not much balm to our injured feelings in the Bulletin, however, for "a thoroughly effective remedy against this insect is yet to be discovered." While this is poor satisfaction it will, at all events, tend to allay excitement. "Any application that may be made is unsuccessful unless applied almost continuously, for as often as the beetles on a plant are killed, others arise from the ground or from neighboring fields to take their place. Whatever practice of a remedial nature is undertaken, whether collecting or spraying, it should be begun at the first onset of the insects' attack and continued until they disappear. Ornamental plants that are hardy may possibly be protected by a heavy application of arsenate of lead, using 4 or 5 pounds to 50 gallons of either water or bordeaux mixture."

The rose chafer is extremely sensitive to disturbance when it is in the pupal stage in the soil. Since both larvae and beetles are very tenacious of life, the pupal stage appears to furnish the most vulnerable period of attack and large numbers may be destroyed by simply stirring the breeding grounds at the proper time to a depth of three or more inches. In northern Ohio the most favorable time for the application of this remedy is from May 25th to June 10th. In the South the operation should be commenced earlier. All ground which might serve as a breeding place should be plowed and harrowed at the proper time. The least possible light sandy soil should be left in sod, only the heaviest land being used for grass.

Besides the damage done to vegetation, the beetles sometimes cause the death of young chickens which eat the insects; poisoning results in the death of the chicken within 24 hours.

The character of the soil bears an important relation to the appearance of the rose chafer. Light sandy regions are greatly preferred as a breeding ground, while clay lands, unless near sandy soil, are seldom troubled.

In THE GARDEN MAGAZINE for May, 1915, was an account of the "Babcock-Lasher Formula," which was reported as quite efficacious against the rose bug—and was later endorsed by several readers who tried it in their gardens. This is 100 gallons water, 15 pounds fish oil soap, 1 pint crude carbolic acid. Shred the soap and dissolve it by boiling in the water. Add carbolic acid while agitating. This spray kills by contact. Officers of the Geneva (New York) Station report favorably on the Babcock-Lasher formula, and it may prove to be quite practical for ornamental plants like Roses and Peonies. The mitigating factor, however, about the rose bug is that its invasion is soon over, and due care as suggested above, with protection by screen coverings of the most desired flowers, will help much.

THE matter of summer sprays is often overlooked; the efficiency and the convenience of the winter spray for all outdoor hardy trees and shrubs has served to focus attention on the major troubles against which it is employed, and there is perhaps a danger of overlooking the later midsummer opportunities or rather necessities. Among the troubles of the season are the many forms of plant louse (or aphis) which may infest almost anything, and always seem to come with certain ornamentals, Roses and Chrysanthemums in particular, also Cherries and Golden Glow, to name only a few conspicuous cases.

Against these the preparations of tobacco offer a handy remedy, clean in the handling and easy in the application—merely mix with sufficient water and apply, as a spray of course. Kerosene emulsions are also available, but less handy and dirtier. And in addition, the up-to-date gardener will be using some copper solution (bordeaux) as a preventive against the fungus attacks to which the other garden crops are heir. Timely spraying is cheap insurance indeed.

THE necessity of a decidedly exact statement of the controlling factors is constantly brought to the notice of those among us to whom others in trouble of one sort or another make appeal for help; help that is gladly given when the question is so clearly put that the actual needs are expressed. One thing that many inquirers seem to forget is that we have before us only the facts that are written down in the question, whereas the inquirer's mental picture is enframed by many other things. He knows the history of his own case—we don't; he knows his soil—we don't; he knows to a large degree what he has done or not done—we don't. Particularly trying it is to have a leaf of a tree or shrub enclosed with a request that the exact cause of death be diagnosed; or again (which is far more usual) some bald statement of trouble only is written down and we are asked to build up a complete catalogue of errors and omissions. It must be remembered that the plant is a living organism and reacts to a multitude of environmental factors. All of which foregoing is by way of asking our readers to take us into their confidence when asking for help.

MR. E. H. WILSON'S series of articles begun this time last year concludes with this issue. In many respects the present article on Rhododendrons is of more general importance to American gardens than any of the preceding because it draws back the curtain upon a distant scene dimly outlined, but surely existent. A path of progress is opened up. Who will lead?

These contributions have been by far the most important writings of recent American gardening literature. They have been stimulating, instructive, inspiring and prophetic. In the name of American horticulture, THE GARDEN MAGAZINE takes this occasion to express to this author some token of appreciation of the work done and the enthusiasm that inspired it. The ultimate fruits of these labors cannot now be measured; but that our horticulture has progressed on to a higher place is abundantly evident. Mr. Wilson's pressing other duties will likely fully engage his time and energies for the immediate future, but he will doubtless be heard from again.

Exit the "String" Bean—ADOLPH KRUHM, New York

[EDITOR'S NOTE.—*This is a continuation of this author's series of articles dealing with the ever present problem, "Which varieties, and why?" While real progress in the intrinsic merits of popular vegetables is slow, yet the tendency is ever onward. Every once in a while the people in general come to realize that among the more recent introductions is something that outclasses its fellows and it becomes the standard of merit for a long time. Mr. Kruhm, in these articles, is giving our readers definite facts about varieties which clarify available knowledge up to date, and places the individual reader in the position of the skilled expert—all that remains is for each one to select those varieties that will best fill his or her peculiar needs. Some years will probably elapse before these recommendations will need radical revision—and equally it will require some time for this present information to be generally assimilated.*]

Bountiful, leading early flat Greenpod

Sure Crop Wax, a heavy yielder for main crop

IT IS time that readers of THE GARDEN MAGAZINE drop the term "string" beans. There is now neither excuse nor reason why stringy beans should be found in the *home* garden. Please note that I emphasize the term "home," since some weighty reasons cause market gardeners to hang on to some sorts that develop strings as they mature. But most market sorts in any class of vegetables are grown for appearances rather than for quality, which is the very best excuse or reason for the rapid rise of the home garden to a place in the nation's interest.

Let us analyze for a moment what we have a right to expect from a perfect bush bean in the home garden. Bush beans are the only ones considered here since, in my opinion, the introduction of extra large sorts in all classes makes pole beans superfluous. Moreover, we now have an assortment of perfect bush beans which thoroughly covers the season from early to late in getting ready for the table, eliminating the necessity of growing pole beans for a late crop. So exit the pole bean as well as the string bean for all practical purposes.

Perfectly thoroughbred, or pedigreed, varieties are found in all four classes of bush beans which consist of flat green-podded, round green-podded, flat wax-podded and round wax-podded sorts. We expect from a bean with a pedigree that it yields its pods on schedule time; that there be plenty of them; and that they be of correct shape and color. You should not find a plant bearing flat-podded beans in a row of a round-podded sort, and there is no excuse for finding a "rogue" bearing green-podded beans in a row of a wax-podded sort.

To yield pods on schedule time is my first requisite in connection with any kind of bean. The reason for this is two-fold. In the first place, there is that everlasting desire to have the first beans—just like the biggest pumpkin or tomato—a motive which is, perhaps, responsible for more worthy ambitions in home gardening than any other. The second reason is far more important, since it touches the pocketbook. The first beans out of your own garden are the biggest money savers, since beans, in common with all vegetables, are most expensive when they first appear in the markets. The second factor determining the value of a bean for the home garden is the quantity of pods produced early and the length of the bearing season.

Quite a number besides those designated as the "Reigning Dozen" bear as many beans; but they either bear them at a time when another, choicer sort is available; or they perfect the complete crop in too short a season (as Valentine, for instance, among the extra early round green pods); or they grow old quickly and get stringy, as is the case with most of the old sorts.

Brittle Wax, which proved to be best type of Round-podded Stringless Wax bean

The final requirements as to shape and color being true to type is of minor importance to the home gardener. I would forgive almost any seedsman the finding of a round-podded rogue in a Bountiful row (though it has never happened yet), so long as the strain of Bountiful itself proves thoroughbred. For vegetables can be bred up to a high standard of perfection, just as livestock, and the tremendous strides made in the improvement of American beans during the last ten years are largely the work of Mr. C. N. Keeney, this country's foremost bean breeder and grower.

The relative yielding qualities of different strains of one and the same sort has been the subject of much study on my part. Among the more than seventy-five trials which formed the basis of observation on which this treatise is built, were three trials of Bountiful, the seeds of which came from New York, Michigan and Wisconsin growers, respectively. All were afforded the same chances on the same soil and all received the same attention and cultivation. Yet the results were five quarts of pods from one row, seven from the next and nine quarts from the row representing the strain grown in New York State—all this on rather poor clay soil.

Again, the New York strain was tested repeatedly for comparative merit on very rich loam, and the results were amazing. Where three pickings of a 15-foot row on poor clay soil yielded nine quarts of pods, plants from the same seed under ideal soil conditions yielded fifteen quarts during the same period. At the end of the bearing season, one 15-foot row of Bountiful had twenty-eight quarts of pods to its credit, and as I write this (August 15th) there are at least four quarts of overgrown pods which we propose to utilize as green shell beans since the limas are exceptionally late this year. Is it a wonder that I enthuse over Bountiful as a star variety, when a 15-foot row has one bushel of pods to its credit?

Because the relative yield of pods on different soils greatly differs in quantity, owners of gardens with rather poor soil should not become discouraged. Growing the beans on exceptionally rich soil has its disadvantages as well. Above all, the plants have to be handled like so many eggs. The rapid and almost rank growth, made by a bean plant under favorable soil conditions, causes the branches to be very brittle.

The author's trials are conducted on a typical home plot and exact records are kept throughout the season. (Photographed August 1, 1915)

The slightest "jerking" of a plant while gathering pods will snap it at the base; or the joints of branches will break, thus stopping bearing. Altogether, I feel that the beginner especially will be better satisfied with his bean patch on clay soil, where the plants make a more compact but more wiry growth; and he will not have the disheartening experience of seeing a bush with thirty to fifty pods snap off because of a careless move.

The table showing the process of elimination employed to arrive at the centrated attention. I see little use in hanging on to two strains of Yellow Six Weeks, when in Bountiful we have the most perfect strain of that type evolved so far; and the seeds cost little, if any, more. Masterpiece is a selection from this. Stringless Green Pod is bound to in the raw stage (as I discovered after sampling some twenty odd kinds of both classes in the fields), this difference fails to be noticeable after cooking. So the ultimatum came from the Chief Cook that, hereafter, the *only* sorts to be considered in the home garden must be round-podded wax beans. This, better than anything I can cite, shows the conclusion of a woman, after a full season's worry about beans and how to have beans that look good on the table with the least amount of work and preparation.

WAX AND GREEN POD BEANS CLASSIFIED ACCORDING TO FORM

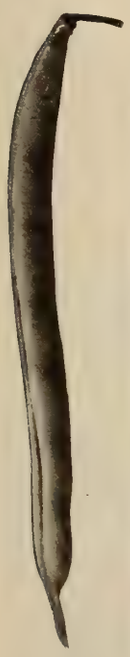
GREEN-PODDED BUSH BEANS		WAX-PODDED BUSH BEANS	
FLAT AND SEMI-ROUND	ROUND OR "SADDLEBACK"	FLAT AND SEMI-ROUND	ROUND OR "SADDLEBACK"
†Early Yellow Six Weeks ‡ †Round Yellow Six Weeks ‡ *Bountiful ¶Early Mohawk ¶Black Valentine †Refugee, or 1000 to 1 *Hodson Green Podded †Tennessee Green Pod	†Extra Early Refugee ‡ *Full Measure ‡ ¶Extra Early Red Valentine †Stringless Green Pod ‡ †Giant Stringless ‡ *Fordhook Favorite ‡ †Longfellow *Keeney's Stringless Refugee	¶Golden Eye Wax †Rust Proof Golden Wax ¶Flageolet Wax ¶Perfection Wax ¶Davis White Wax †Michigan White Wax ‡ *Stringless White Wax ‡ †Detroit Wax †Currie's Rust Proof †Wardwell's Kidney Wax *Burpee's New Kidney Wax *Sure Crop Wax *Hodson Wax ¶Yosemite Mammoth Wax	†Challenge Black Wax ‡ †Prolific German Black Wax ‡ *Pencil Pod Black Wax ‡ †Saddle Back Wax ‡ †Round Pod Kidney Wax ‡ †Hardy Wax †Golden Scimitar *Brittle Wax *Keeney's Stringless Refugee Wax †Refugee Wax

*Merit †Superfluous ‡Too much alike to be considered separately ¶Obsolete

THE REIGNING DOZEN BUSH BEANS—SEEDS SOWN MAY 9th

VARIETY NAME	FIRST READY	AVERAGE LENGTH OF POD (INCHES)	SHAPE	COLOR	SEASON OF BEARING	AVERAGE YIELD IN ONE PICKING OF A 15 FT. ROW (QUARTS)	NOTES
Bountiful	July 10	6½	Slightly curved, flat	Medium green	6 weeks	5	Leading early flat green pod
Hodson Green Podded	July 30	7	Straight, flat	Light green	Until frost	5	Stringy when old
Full Measure	July 16	6	Round, curved	Dark green	4 weeks	4	Most prolific round green pod, during its season
Fordhook Favorite	July 18	5½	Round, slightly curved	Dark green	5 weeks	3	Pure white seed
Keeney's Stringless Refugee	July 28	5	Round, slightly curved	Light green	Until frost	3	Very prolific, late
Stringless White Wax	July 20	5	Straight, flat	Lemon yellow	5 weeks	3	Seeds, pure white
Burpee's New Kidney Wax	July 12	6½	Straight, flat	Light yellow	6 weeks	3	Leading early, flat wax pod
Sure Crop Wax	July 14	6½	Straight, flat	Dark yellow	Until frost	4	Heavy yielding main crop
Hodson Wax	July 27	6½	Straight, flat	Creamy white	Until frost	5	Stringy when old
Pencil Pod Black Wax	July 18	5	Slightly curved, round	Dark yellow	Short	3	Best strain of black wax
Brittle Wax	July 16	5½	Round, curved	Lemon yellow	6 weeks	3	Leading early round wax pod
Keeney's Stringless Refugee Wax	July 25	5	Round, curved	Light yellow	Until frost	3	Very prolific, late

"Reigning Dozen" needs some explanation. Discounting at the start all obsolete sorts, I am confronted by the necessity of giving some reasons for considering superfluous some of the standard sorts of to-day. In most cases the reason lies in the fact that newer and more thoroughbred sorts of the same season of maturity deserve more con-



Stringless Refugee Greenpod. Very prolific, late

Just as easy to grow a stringless bean (left) as one with "wire" (right)

be replaced by Fordhook Favorite in the future, popular as Stringless is to-day. The reason for this is the fact that Fordhook Favorite is not only handsomer and more prolific, but its dry beans are pure white, making it an ideal shell bean. While it is a little later than Stringless, the latter bears at the same time as Bountiful; you do not need Stringless if you have Bountiful. Besides, Full Measure is a heavier yielder of round pods than Stringless, and there you have the "survival of the fittest."

There *is* no reason why readers of THE GARDEN MAGAZINE should continue to grow Golden Wax, Currie's Wax and Wardwell's Kidney Wax, all of which quickly get stringy and old, when such sorts as Burpee's New Kidney Wax and Sure Crop Wax are available. These new sorts are not only larger, of handsomer shape and stringless *always*, but they also out-yield these popular standards of to-day and remain much longer in prime condition.

THE RELATIVE QUALITY

The flat-podded kinds usually grow longer and remain longer in good condition for table use. This is due to the larger amount of fibre in the flat beans and more water in the round pods. But the round-podded sorts are uniformly fleshier, snap better and present a more appetizing appearance even after they become overgrown.

The biggest point of favor of the yellow-podded sorts is their splendid appearance when served. While there *is* a difference in flavor between the green-podded and the wax-podded sorts

One of the biggest points in favor of the green-podded sorts, both flat and round-podded, is their greater rust resistance, as compared with their wax-podded brethren. If any season ever tested this resistance to the limit, it was the summer of 1915. In order to be able to make some positive statements, certain rows in the home garden, representing

Hodson Wax, a good quality bean if taken young

Fordhook Favorite, an improved strain of Stringless Greenpod

both wax and green-podded sorts of round and flat shape, were abused. They were picked immediately after rains and in the morning, with the heavy dew upon them. The results proved a triumph for the "Reigning Dozen" and especially for the five green-podded sorts. Only one among them, Fordhook Favorite, was affected slightly, while Bountiful showed the strongest resistance and Hodson Green and Hodson Wax-podded proved practically immune. Among the wax pods, Pencil Pod Black Wax rusted badly. But that sort is needed on account of its season of maturity which complements that of Brittle Wax to perfection, since the first few pickings of that sort are usually light.

Bountiful, a leading type of Greenpod bean. Early and prolific

Hodson Green Pod competes with Bountiful for the beauty prize. The handsome, long, slim pods are surely the prettiest produced by any sort in its class. Up to the time when they become six and one half inches long, they are perfectly stringless, provided the season is favorable and pods develop rapidly. As they become fully developed and grow old, they show a decided string—they develop a "backbone," as my friend Mr. Keeney expresses it. But most anybody is willing to forgive that to a bean that behaves well until it's overgrown!

Keeney's Stringless Refugee is the shortest of the leading five green pods, but by far the most prolific late sort, considering the number of pods it yields. The drawback with ordinary strains of Refugee has always been their stringiness. After snapping hundreds of Stringless Refugee pods, I know that the perfectly stringless Refugee has materialized.

Stringless White Wax is a factor to be reckoned with for the same reasons as Fordhook Favorite. It has pure white seeds and is perfectly stringless. It thus causes Davis White Wax to become antiquated and puts such sorts as Golden Eye Wax and Detroit Wax, which are of similar shape, but smaller and stringy, in the discard.

Hodson Wax is identical in every way with Hodson Green Pod except that the pods average slightly shorter. This is offset, however, by its being several days earlier in perfecting its handsome pods which rival those of the New Kidney Wax in beauty and symmetrical shape, but not in quality, nor in the peculiar richness of the latter's color.

Keeney's Stringless Refugee Wax is the brother to the green-podded sort mentioned above. It deserves the increased attention of discriminating planters who look for the best which human efforts to date have been able to produce in later maturing sorts.

Here is a definite schedule for growing beans which, if adhered to, will stand for perfectly stringless beans from early in July until frost. Early in May plant one row each of Bountiful, New Kidney Wax and Sure Crop Wax. Follow this two weeks later with a 15-foot row each of Fordhook Favorite, Full Measure and Brittle Wax. Around June 1st, repeat the first planting and wind up the bean plantings on June 15th by sowing a 15-foot row each of Hodson Green Pod, Hodson Wax and either of the Refugee Stringless. One half pint of seed of each sort will prove sufficient.

Practical Plans for the Home Grounds—RUTH DEAN, Landscape Architect

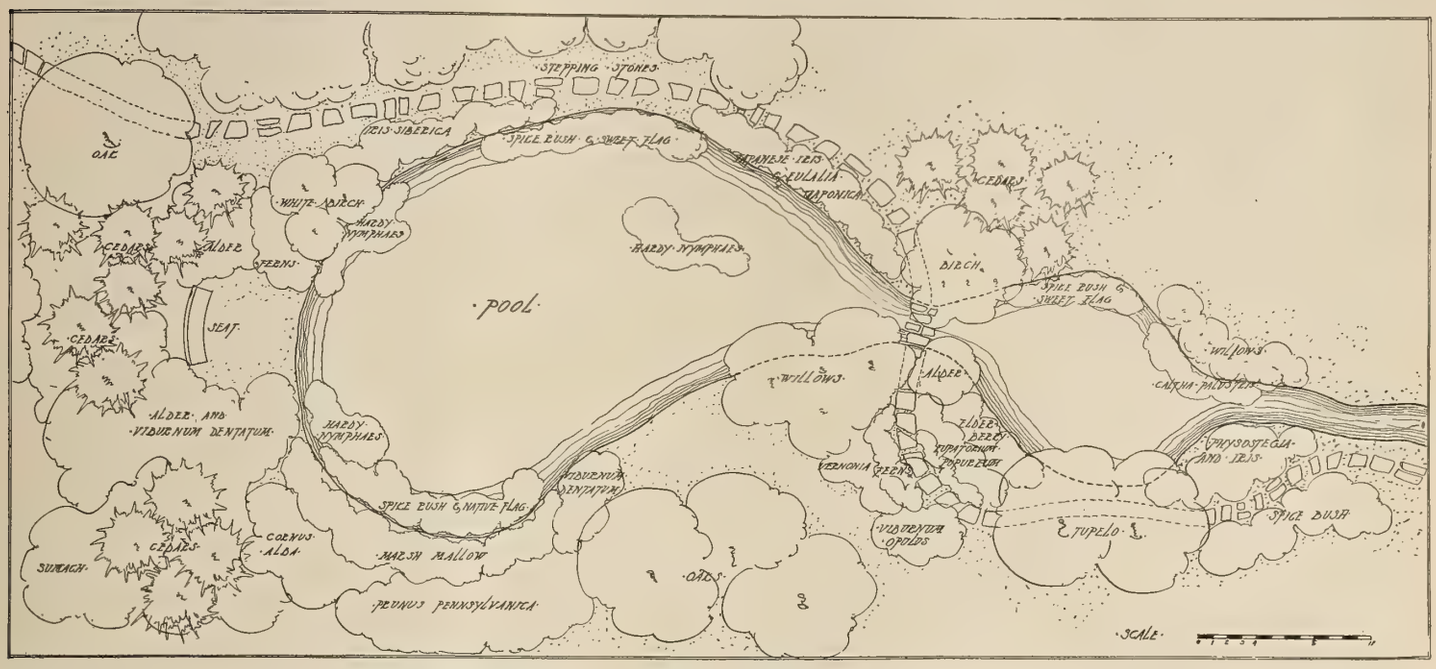
XI. On Informal or Naturalistic Pools

THE principle in planting which governs fitness for formal pools applies in much greater degree to informal ponds—the difference is in degree not in kind. About the brick or stone bordered pool of an architectural garden it is advisable to plant those flowers and shrubs which grow natively near water, but along the edge of a naturalistic pool it is imperative, if the pool is to possess the spirit of a real water side.

No vegetation is quite so markedly characteristic of its habitat as that which grows near water. The grassy leaves of Cattails, Spike Rush and Iris, the luxuriant Marshmallow and swamp Milkweed, bending Willows, Alders and Birches, they all have a quality which is associated very definitely in our minds with streams and ponds, or or brooks and marshes. On the other hand such nurserymen's shrubs as Lilac, Weigela, Golden Bell and Deutzia, with flowers like Hollyhocks, Snapdragons and Nasturtiums, have a tame cat feeling which is quite appropriate in a house garden, but which is out of keeping with a pool that is trying to capture a few of Nature's water sprites.

The luxuriant growth of the Lily pads needs a check in order to have some water surface clear for reflection

The growth is not over luxuriant here and the result is more in keeping with the usual ideal of Water-lily growth



Suggested planting plan for a naturalistic water garden with appropriate plants surrounding. Note the restrained use of aquatics so as to have the water itself as a feature of the picture

Nothing will illustrate this more readily than the photographs on the preceding page. The planting on the left is inclined to be spotty and gardenesque and the stream in consequence seems a kind of make believe play stream, with no illusion of real woodland to please the fancy. But the pool in Mr. Reuben's garden (designed by Mr. Jens Jensen), shown alongside, has all the quality of a natural pool, and the remoteness of forest depths, although it is small in size and but a hundred or two hundred feet from the house.

The first photograph illustrates a mistake very often made; that of all wing Lily pads all the freedom they want, and are quick to take advantage of. Half the interest in a pool lies in the water surface itself, and if this is covered entirely by flat commonplace leaves there is no "gazing globe" left in which to see a "summer day's reflections." A much happier arrangement of Lily pads, and one which the smaller pool would do well to copy, is where the Lily pads are massed in spots.

To those who prefer a more open type of pool with the banks not so heavily planted as those of the Reuben's pool, the picture on this page will offer suggestions. What planting there is along this water's edge is of a kind to preserve the natural feeling, with no garden shrubs to introduce a nursery spirit. The grass instead of being cut directly to the water's edge, a treatment which results in an artificial look, and should be reserved for pools of formal shape, grows rough along the border, with the clipped grass stopping a few feet back. Tall Eupatoriums, rose and white, with Goldenrod and grasses, fringe the banks between black Alder bushes and here and there a bigger shrub or tree breaks the even line of the water's edge.

"An open water's edge with a fringe of marsh plants to soften the border"

However little planting there is about a naturalistic pool, it should be of a character to emphasize the water. Garden shrubs and flowers betray the fact that they have been planted by the hand of man, and give the pool away, so to speak. If it is to be convincingly naturalistic with all the charm of the "old swimming hole," or a country mill pond, it must be planted with those things which will recall the spirit of the countryside.

A Pink-Flowered May-Apple

PAUL H. SMITH, IOWA

OCCASIONALLY one finds a wild flower of such extraordinary beauty and charm that he is quite won away from his old garden favorites and wishes that they might all be replaced by the stranger from the woods. This was particularly true of the pink-flowered May-apple, or Mandrake, as it is sometimes called, for, when it made its first appearance in the Botany Laboratories of Grinnell College last spring every one confessed a case of love at first sight.

Some students on a picnic found the flowers growing in a grove of natural timber cheek by jowl with their plainer relatives the ordinary May-apple (Podophyllum peltatum). The plants correspond to type in every respect except the color of the flowers. The stems and leaves were just as large and vigorous; the flowers just as big and waxy; it was the blossom that caught and held the attention. Every flower showed a decided tendency toward doubling, for in every case the usual single row of petals was replaced with a triple or quadruple row. The edges of the petals were crinkled and crimped like crepe paper or poppy petals. The dominant characteristic, however, was coloration. Each flower was a delicate pink, laced with veins of a darker hue, and each petal showed all the delicate gradation of color found in a peach blossom or on a Rose petal. Moreover the strangers apparently had lost nothing in fragrance, for they had the same heavy, almost sickening, perfume usually associated with thoughts of the May-apple.

The May-apple is one of the few wild flowers that does not quickly wilt and droop when picked. The flowers can usually be depended upon to retain their beauty and fragrance as long as Roses under the same conditions. By snipping off the large peltate leaves close to the stem, the blossoms are shown that before were completely hidden in vases.

Where he survives the Rhododendron is the King of the Shrubbery

"Hardy" Rhododendrons*—ERNEST H. WILSON, Arnold Arboretum

AMERICA'S NEEDS AND THE OPPORTUNITIES TO MEET THEM—WHAT MUST BE DONE TO SHAKE OFF THE SHACKLES OF EUROPE'S MODELS, EXCELLENT IN THEIR OWN PLACE BUT UNFITTED TO OUR CLIMATE

[EDITOR'S NOTE.—*In this concluding article of a remarkable series, which began last June, Mr. Wilson opens up a vista of great possibilities for the American gardener and throws down the gauntlet. The way out is indicated. Who will lead on?*]

RHODODENDRONS are in the forefront among hardy ornamental shrubs and are warm favorites in the gardens of this country and of Europe and more especially those of the British Isles. The evergreen section with its bold foliage and large clusters of handsome flowers numbers within its ranks some of the noblest of all plants found in the north temperate regions. The section with deciduous leaves is not surpassed in wealth of blossom by any class of hardy shrubs. The flowers vary enormously in size in the different species and embrace all shades of color except those of blue. In many the flowers are delightfully fragrant and where the climate is congenial the season of flowering is virtually continuous the year round. Small wonder then that the desire to possess them is so very general. No class of shrubs possesses greater attractions and given certain essential conditions and provided the varieties planted are perfectly hardy their culture is fairly simple. But in the colder parts of eastern North America the climate is such that only the very toughest of existing varieties survive the summer drought and winter cold and the need of a more enduring race is patent. In this article it is proposed to go fairly exhaustively over the whole field of hardy Rhododendrons and to draw attention not only to a majority of the best sorts American gardens possess but to delve deeper and point out a possible way toward the attainment of a race more suitable to the climatic conditions that obtain.

The subject has many aspects but it may be opened by remarks on the essential points in the culture of this class of plants in general. Evergreen Rhododendrons are mainly woodland and in a measure also alpine plants and they must never be allowed to get dry at the roots. A situation screened from the morning sun and sheltered from cold cutting winds and where the roots may be kept cool is essential to success. The strong sun in March which draws moisture from the leaves when the ground is frozen and the roots perforce incapable of making good the loss is a potent cause of death. This in conjunction with the tender strain in the present-day race and the fact that the majority are grafted on the not hardy *R. ponticum* very thoroughly explains the disappointment so generally experienced by American lovers of these plants, and especially those whose gardens are in New England.

If practicable it is best to plant these Rhododendrons in association with trees; for, by so doing, they receive a measure of protection from the sun's direct rays. In thin woods or on the margins of such woods are good sites and if the situation is open and exposed a screen of conifers—Hemlock, White or Red Pine—should be afforded them. If the situation be such that the roots are kept cool by a thorough water-supply, the nature of the soil (always provided it does not contain lime) is of less importance than is often claimed. Where the White and Red Pine, Birch, Chestnut and White Oak thrive Rhododendrons will grow. A soil free of lime, sweet, moist and porous and fairly rich in leaf soil is the ideal. A decomposed granitic soil rich in humus is excellent. In the absence of lime, Rhododendrons will grow in good loamy soil; but it should ever be remembered that they are humus-loving plants and require to be mulched with leaves and the soil enriched with leaf soil or sandy peat. It is usually assumed that peat is necessary in order to grow these plants but as a matter of fact a far greater number of the species find a home on humus-clad rocks and cliffs than in peat swamps.

In regions where the seasons are milder than in New England, these Rhododendrons will thrive in positions more or less fully exposed to the sun; but no matter where they are planted they must never be allowed to suffer from drought. The root system of all Rhododendrons is fibrous and scarcely de-

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scends more than a foot below the surface. Obviously a mass of fine hair-like roots near the surface of the ground cannot withstand drought and the need of a mulch of leaves is clearly shown. On account of their fibrous root system, Rhododendrons are easy subjects to transplant provided this be done with a large ball of earth and due attention be given to keeping them properly supplied with water afterward.

The hardy members of the Azalea section are all virtually deciduous and a majority will stand more exposure to sun and drier conditions than will their evergreen relatives, but drought has very evil effects upon these also. It is advisable to place these Azaleas fairly close together and, as a ground cover, to plant different varieties of Heather (*Calluna vulgaris*) and hardy Heaths (*Erica carnea, E. vagans*), which are not only pretty in themselves but mask the ground from the sun's rays. Another and highly important item in the culture of all Rhododendrons is to remove all flowers after they have faded to prevent the development of seed pods and to encourage new growths.

A race of Rhododendrons that will thrive in limestone soils is at present a desideratum. There are several Chinese species which grow naturally on such soils, and it is within the bounds of probability that the future may see a race at least indifferent to this mineral. At present, however, those whose gardens are in limestone areas must give up thoughts of growing these plants unless they are prepared to make elaborate preparations and take the risks involved. To those desirous of such experiments it may be pointed out that *mounds of prepared soil* should be made and *not dug out beds* filled with suitable compost since the lime has a very much smaller chance of impregnating a raised site.

For the purpose of this article hardy Rhododendrons may be divided into two groups known popularly as Azalea and Rhododendron. In the first the leaves are deciduous or nearly so and rather small; in the second the leaves are persistent and usually of good size. These main groups are pretty clearly defined in the minds of all garden lovers, but it is convenient to subdivide them again: the Azaleas into three smaller classes and the Rhododendrons into two. The three sections of Azalea may be briefly characterized as follows:

Rhododendron flavidum, flowers pale yellow. A new dwarf Chinese plant useful for rock gardens

I. RHODORA: Flowers from a terminal bud, leafy shoots from separate, axillary buds; corolla almost two-lobed; stamens seven to ten.

II. PENTANTHERA: Corolla funnel-form, stamens five, otherwise as in Rhodora.

III. TSUTSUTSI: Flowers and shoots developed from the same terminal bud.

(I) The first section includes the Rhodora (*R. canadense*) and *R. Vaseyi*, both good garden plants which thrive best in rather moist soil in the neighborhood of water. The Rhodora grows wild from Newfoundland to Pennsylvania and New Jersey, and in the north in May covers large areas of swampy land with a sheet of bloom. This dwarf shrub, with its small rose-purple flowers, is so well-known that further details are unnecessary. Early in May *R. Vaseyi* opens its compact clusters of small pink flowers before its leaves appear. This Azalea is an inhabitant of a few of the high valleys of the Blue Ridge Mountains in South Carolina and had been entirely overlooked until some thirty years ago. It is a shrub with slender stems, and of loose irregular habit, sometimes growing to the height of fifteen or eighteen feet, although under cultivation it begins to blossom when less than a foot high. It is perfectly hardy and the pure, perfect pink of its flowers is scarcely equalled by that of the flowers of any other plant. There is also a form (*album*) of this Azalea with white flowers.

Rhododendron intricatum, flowers pale violet, a new type from China that is valuable for the rockery

(II) Eastern North America is very poor in species of evergreen Rhododendrons but it can claim to be the richest region in the world for the section Pentanthera. Of the thirteen species belonging to this group eight are native of the Atlantic seaboard, and one (*R. occidentale*) of the western slopes of the Cascade and Sierra Nevada Mountains of the West, and another (*R. sonomense*) with smaller, rose-colored fragrant flowers, grows on dry slopes of the mountains near San Francisco, but is not in cultivation. Of the other three, one (*R. japonicum*) is confined to Japan and Korea, another (*R. sinense*) to eastern and central China and the third (*R. luteum*) to the Caucasus, the region in Asia Minor bordering the Black Sea known in ancient times as Pontus, and to Galicia where only recently it has been discovered. Of the American species of this group five are well established in the Arnoll Arboretum and no group of plants perfectly suited to our climate surpasses them in beauty. The first to open their flowers are *R. canescens* and *R. nudiflorum*. Both have fragrant pale rose or pink flowers of various shades which appear before the leaves or just as they begin to unfold. In general appearance these two plants are very similar but one is a southern and the other a northern plant though there are places where they grow together. The plants are twiggy, of medium size, and grow singly or in great masses on treeless hillsides or in open woods. *Rhododendron canescens* is very abundant in parts of Worcester County, Mass., and *R. nudiflorum* is especially common in the Gulf States from eastern Florida to eastern Texas.

The next to blossom is *R. calendulaceum*, the yellow Azalea of the Appalachian Mountain slopes which opens its flowers early in June. The color varies from bright yellow to orange or shades of red and the beauty is heightened by contrast with the dark green leaves which are well grown before the flowers op . It is a rather slow growing but long lived plant, from eight to ten feet tall, and the beauty of its brilliant colored flowers is not surpassed by those of any other Azalea. The Yellow Azalea is followed by *R. arborescens* another inhabitant of the glades of the Appalachian Mountains from Pennsylvania to Georgia which blooms about mid-June. This is a tall shrub, growing from ten to fifteen feet high, with large, pure white, very fragrant flowers, the beauty of which is increased by the bright scarlet color of the long exserted stamen-filaments and styles. The leaves are pale colored and are full grown before the flowers open. The last to flower is *R. viscosum*, the Clammy Azalea or Swamp Honeysuckle, a common inhabitant of swamps near the Atlantic seaboard, which does not open its flowers until July. It is a shrub of medium size with small, very fragrant, pure white blossoms covered with sticky hairs and the leaves are often pale bluish especially on the lower surface. The plant is valuable for the lateness of its flowers, which continue to open for weeks when those of most shrubs are past.

These five Azaleas are all good garden plants which take kindly to cultivation and thrive in ordinary soil in either open or shady situations.

Of the other American species of this section seedlings of *R. austrinum* and *R. candidum* are growing in the Arnold Arboretum but it is too early to judge of their merits as garden plants. The first has pale yellow flowers appearing before the leaves and is native of the valley of the Apalachicola River in western Florida; the second has white or pale pink flowers which appear after the leaves and is native of southern Georgia. Another species (*R. flammeum*) common in open woods in parts of central Georgia, is not in cultivation. The Western *R. occidentale* with its lovely white flowers has not yet been successfully acclimatized in the Arnold Arboretum.

The Chinese *R. sinense* has large, rich yellow flowers and is almost hardy with us; the other east Asiatic species (*R. japonicum*) is perfectly hardy and its large flame colored flowers are very handsome. These species grow from four to six feet high and have stiff and relatively thick ascending branches. The remaining species (*R. luteum*, or incorrectly *R. flavum*), commonly known as *Azalea pontica*, is not hardy in the Arnold Arboretum. It has been much used in hybridizing as we shall presently see but it is doubtful if the true species is in cultivation in this country.

Rhododendron racemosum, flowers pure pink to pale rose, suitable for rockeries and for massing

As shown above there is a great range of color in the American Azaleas and being perfectly hardy one would naturally expect to find them very generally planted in the gardens of eastern North America. Such, however, is not the case for the simple reason that it is difficult to procure them for very few American nurserymen are willing to devote the time and trouble nece sary to

raise these plants from seeds, the only successful way in which they can be propagated.

In the absence of these plants and in ignorance of their value and beauty resource is made to the so-called Ghent Azaleas—a race of enchanting hybrids but short lived, indifferently hardy and not suited to the climate of New England. As pot plants for forcing purposes it is all very well to import them from Europe by the ship load but for the embellishment of the outdoor garden in the colder parts of this country they cannot be recommended. Much may be learnt from history in the matter of plants as in that of mankind and the outlines of the origin of these so-called Ghent Azaleas is instructive. In 1738, Peter Collinson introduced from this country to England *R. nudiflorum*, *R. viscosum* and *R. calendulaceum;* in 1793, *R. luteum* was introduced from the region bordering the Black Sea. This Pontus Azalea has fragrant, bright yellow flowers each two inches across and its value as a garden plant was soon recognized. In a few years a great number of hybrids between it and its American allies were raised in England. The work was soon taken up in Ghent, first by a baker named Mortier and afterward by various nurserymen of whom Van Houtte was the first to raise forms having double flowers. But *R. luteum* came from a warm climate and its influence on hybrid offspring has been toward a dislike of low temperatures. In a measure this explains the lack of success experienced by garden lovers of New England with these Ghent Azaleas. It is probable that if seeds of *R. luteum* were obtained from its altitudinal limits in the Caucasus or from Galicia a hardier type would result.

Another class of Rhododendrons much cultivated in Belgium is that known as Mollis Azaleas. This has resulted from the intercrossing of *R. sinense* and *R. japonicum* with various Ghent Azaleas. The class is a very beautiful one but is not more hardy in New England than the pure Ghents.

(III) Under the name Tsutsutsi (our third section), the Japanese include most of the Azaleas known in Japan and of the three species of this section which it is necessary to mention here two grow naturally in the Land of the Rising Sun and the other in Korea. The most important is the scarlet flowered *R. Kaempferi* which was introduced by Professor C. S. Sargent in 1892, and is one of the most valuable shrubs that gardens of eastern North America have received from Japan. It is a deciduous and perfectly hardy shrub with slender stems and twiggy branchlets and grows from three to eight feet high. The blossoms open about mid-May and the plants are a perfect blaze of color for one to two weeks. Where fully exposed to the sun the flowers bleach, and to enjoy the full beauty of this plant it should be planted in partial shade. It is good as a specimen bush but it is better when massed. The other Japanese species *R. rhombicum*, is a shrub growing four to ten feet high with slender rigid stems and rich red-purple flowers in small clusters. It is perfectly hardy and thrives in the open or in partial shade.

The Korean species (*R. poukhanense*) is a new introduction and was raised in the Arnold Arboretum from seeds sent by Mr. J. G. Jack from Korea in 1905. In cultivation it is a low, much-branched, very compact round-headed shrub and perfectly hardy. The dark green, oblong, pointed leaves are deciduous and the flowers are rosy-mauve or red-violet in color and delightfully fragrant. This new Azalea flowers very freely and promises to be an excellent plant for the open border or for the rockery. A double flowered form is in cultivation under the name of *Azalea yodogawa*, but this plant is very inferior to the type species.

There are other well known and beautiful Azaleas like *R. amoenum*, *R. obtusum* and *R. ledifolium*, unfortunately not quite hardy in New England and rarer species like *R. Schlippenbachii* and *R. Albrechtii*, but we must hasten and deal with our second main division.

HARDY EVERGREENS

HARDY evergreen Rhododendrons may be divided into two groups characterized by the nature of the undersurface of the leaves. In one the underside of the leaf is more or less densely dotted with small, often brownish, scale-like glands; in the other it is either smooth and green, or more or less hairy (often densely felted) or clothed with a pale or dun colored crustaceous covering.

The group with dotted leaves is a very extensive one and a great number of species grow on the mountains of western China and on the Himalaya and three (*R. carolinianum*, *R. minus* and *R. lapponicum*) are native of eastern North America. All have small or comparatively small leaves but only a very limited number have proved to be hardy and amenable to cultivation in this country. Many of them may be rooted from cuttings but it has been found difficult to hybridize them with members of other groups. As a garden plant for this country, *R. carolinianum* is by far the best species of this group and is one of the very finest of all broad-leaved evergreens hardy in Massachusetts. It is a shrub of compact habit from four to six feet tall and as much in diameter, with handsome dark green leaves and is very floriferous. The flowers are pale to deep pink and are borne in clusters and open and fade before the young branches begin to grow and therefore are not hidden by them. The species is native of high altitudes in the southern Appalachian region and was formerly confused with *R. minus* (better known as *R. punctatum*) which grows in the same region but at a lower level. *Rhododendron minus* is an old denizen of gardens and has smaller leaves and flowers and a more open habit than *R. carolinianum* and the flower clusters are much hidden by the young branches which rise high above them. The third native species (*R. lapponicum*) is an alpine plant which also grows wild in Europe and has proved a difficult subject under cultivation.

The two dwarf Rhododendrons (*R. ferrugineum* and *R. hirsutum*), native of the mountains of central Europe are unsatisfactory in New England but three hybrids between them and *R. minus* are valuable garden plants in this climate. One of these hybrids (*R. myrtifolium*) is between *R. hirsutum* and *R. minus*, and is a very compact round-topped shrub, from two to four feet in height and as much through, with neat foliage and small pretty pink flowers. Another (*R. arbutifolium*) is a cross between *R. ferrugineum* and *R. minus* and is a shrub of open, spreading habit and forms low, wide masses. The foliage is handsome but the flowers are small and of an unattractive rose color and the value of the plant is in its ability to cover either sunny or shady banks and for this it is admirably adapted. The third hybrid is *known in gardens* as *R. Wilsonii* and is of the same parentage as *R. arbutifolium* which it much resembles in habit and usefulness. From the cold regions of Mandshuria and Korea come *R. dahuricum* and *R. mucronulatum*, which though they belong to dotted-leafed group have deciduous leaves. These grow from four to eight feet high and are sparsely branched. In the first named the flowers are deep rose-purple and pink, and rose colored in *R. mucronulatum*. They are the earliest of this class to open their flowers and in consequence these are often spoilt by late frosts in the spring. Other early flowering Rhododendrons are *R. praecox* and its variety Early Gem, which are the result of crossing the Himalayan *R. ciliatum* and *R. dahuricum*. Both are evergreen bushes, much branched and compact in habit and have pale to deep pink flowers. In favorable seasons when the flowers escape late frosts these plants are very beautiful in spring but unfortunately this rarely happens.

Valuable for the rockery and partial to sunshine are *R. racemosum*, *R. flavidum* and *R. intricatum*, three newcomers from China. They are twiggy plants growing from four to six feet high and may be rooted from cuttings. The first-named was introduced to Paris about 1890, and has pure pink to rose colored flowers. The other two were introduced to England by myself in 1904 and one, as its name suggests, has pale yellow blossoms while those of *R. intricatum* are pale violet. These species are very floriferous alpine plants with small leaves and flowers and of neat and charming habit.

The only other species of this group that need be mentioned is *R. micranthum*, also from China, which has clusters of minute Ledum-like white flowers and small leaves. It is a hardy plant of twiggy growth well suited for massing and grows from four to six feet tall.

THE COMMONER GARDEN KINDS

WE now come to the last group, the most valuable and desirable of all and the one with which most people associate the name Rhododendron. As met with in gardens and in nurseries this group is mainly of hybrid origin and I may preface what follows by an enumeration of the best varieties which the experience of the Arnold Arboretum has found most adaptable to this climate. With red flowers, Atrosanguineum (very early), Charles Dickens, H. W. Sargent (late); with reddish flowers, Caractacus; with rose-colored flowers, Roseum elegans, Lady Armstrong; with pink flowers, Mrs. Charles Sargent, Henrietta Sargent; with dark purple flowers, Purpureum grandiflorum, Purpureum elegans; with light purple flowers, Everestianum; with white or nearly white flowers, Album elegans, Album grandiflorum, Catawbiense album (very early). A few more are mentioned later on in the text and one or two others, for example, the white flowered Madame Carvalho, are promising.

It will be seen that the number is very small, and also it must be pointed out that in the Arnold Arboretum these plants occupy a very favorable position at the base of a steep slope clothed with Hemlock and therefore much protected. Had this article been written two or three years ago one might have included other varieties such as Mrs. H. H. Hunnewell, King of the Purples and Delicatissimum, but longer experience has proved them less hardy than was generally supposed.

The mild winter of 1914-15 will long be remembered by all lovers of evergreen Rhododendrons who endeavor to grow these plants outdoors in New England. The effects in general were disastrous though fortunately there were exceptions. In some gardens these Rhododendrons came through exceptionally well, in others the mortality was greater than ever before. In the Arnold Arboretum varieties considered "iron-clad" for twenty years were killed outright. No general statement can possibly explain these inconsistencies, but the fact outstanding is that for New England a tougher and more adaptable race of evergreen Rhododendrons is absolutely necessary if these plants are to occupy in gardens the permanent place their beauty merits. Continuing to import plants bred and nurtured in alien lands where milder climates prevail will not solve the difficulty. Neither will digging plants from the mountains of Pennsylvania, shipping them in carload lots to furnish the estate and coaxing them in every possible way. This despoiling of the countryside is most reprehensible. It is vandalism; it is destructive and absolutely opposed to the true spirit of gardening which essays to be constructive. None of the easy and apparent short cuts will attain the object. The problem has to be studied from a very opposite viewpoint and attacked accordingly. True horticulturists should welcome it since it affords such scope and opportunity to prove their worth.

OUR VITAL NEED

LET us dig casually into the subject and look the facts squarely in the face and having realized our situation perhaps some one will seize the vast opportunity that awaits. What American gardens need is a race of evergreen Rhododendrons with good foliage, and large and bright colored flowers, that is perfectly hardy. It is admitted that the few kinds enumerated earlier have endured the summer drought, the winter cold, and the March sun of New England more or less satisfactorily for a number of years but they are still uncertain and owners breathe freely each May when they find the plants still alive and healthy. In Massachusetts large sums of money have been spent on these plants but the results on the whole are discouraging and some who have given much in time, labor and money in the attempt to make this class of Rhododendrons grow successfully are losing or have lost hope. Such are the facts of the present-day situation in New England and it is pertinent to ask is there a remedy or a way out of the difficulty?

I make bold to say that there is, but it en-

The deciduous Rhododendrons (Azaleas) are among the most gorgeous of the Spring flowering shrubs. A mixed lot shown here

A fairly hardy evergreen hybrid Rhododendron, Cunningham's White. This effect is typical of the possibilities of these plants

tails beginning again. It means beginning here in New England and elsewhere in this country, and breeding a race suited to the climatic conditions which obtain; it means abandoning the old and lazy policy of relying upon other lands to supply our needs in this respect; it means that we must do here what Europe has done, namely, work out our own salvation. We start later than they across the Atlantic but we start with great advantages including those which have accrued from the labors of the past. A little of that concentrated effort and skill which has produced that most typical of American floral products—the Perpetual Flowering Carnation—would yield us our desire in the matter of a race of hardy broad-leaved evergreen Rhododendrons.

The present day race of evergreen Rhododendrons is essentially an English product and to better understand the subject let us briefly investigate its early history. No Rhododendron is native of the British Isles and the first of the evergreen section to be introduced was *R. maximum*, indigenous to eastern North America, which flowered for the first time in London in 1756. A few years later (1763) *R. ponticum* was introduced and was followed in 1803, by *R. caucasicum*. The American *R. catawbiense* was introduced by John Fraser about 1809, and was common in gardens in 1838. Here are the beginnings of the Rhododendron cult in England. Of these four species two only (*R. ponticum* and *R. catawbiense*) have played a major part.

As a breeder *R. ponticum* has been the greatest asset and although its color is not good it has proved extraordinarily adaptable in Great Britain and Ireland. This species grows wild in southern Spain and reappears in Asia Minor, in Syria and the warmer parts of the Caucasus. These regions enjoy a much warmer climate than does New England and from our viewpoint it is a tender species and unsuitable as a breeder. Also, for the same reason, it ought not to be used as a stock for grafting, yet, unfortunately, it is *the* stock so employed. An appreciation of these facts explains in a large measure the doubtful hardiness and uncertainty of the present-day race of Rhododendrons since the blood of this tender species enters largely into the majority of the varieties.

In the matter of hardiness the American *R. catawbiense* has been the greatest of all gifts in the realm of Rhododendron and the hardiness of our present-day race depends almost solely upon the dominant influence of the blood of this species.

Rhododendron caucasicum is native of the higher Caucasus peaks and should be of much value to us since it is quite hardy in New England. Unfortunately it has been very little used by hybridists but such offspring as Boule de Niège, Coriaceum, Jacksonii and Mont Blanc are very satisfactory plants in the Arnold Arboretum.

Our native *R. maximum* though the first species introduced to cultivation has played a very unimportant part in the evolution of present-day Rhododendrons. In a manner it has been disappointing yet it is questionable if it has had a fair chance. To us its hardiness and late flowering are qualities of vast import.

The first authentic hybrid is considered to have arisen accidentally about 1820, between *R. ponticum* and *R. nudiflorum* (an American species of the Azalea section) and is still in cultivation under the names of *R. odoratum* and *R. azaleoides*. About the same time *R. catawbiense* was crossed with *R. ponticum* but the results were unimportant. Other early hybrids were Hybrid Maximum (*R. ponticum* x *R. maximum*) and Caucasicum album (*R. ponticum album* x *R. caucasicum*).

The earliest introduced species were lacking in color and their hybrid offspring had the same defect. In 1811, the Himalayan *R. arboreum* with intense red flowers was introduced to England and this marked an epoch in the cult of the Rhododendron. The first really important hybrid resulted from crossing *R. arboreum* and *R. catawbiense* in 1826, and was named *R. altaclarense* and the present-day race may be said to date from this period. But this magnificent Himalayan species is less hardy than *R. ponticum* and is quite unsuited to the climate of New England. Furthermore it flowers very early which is another drawback.

Rhododendron arbutifolium, low shrub of open, spreading habit useful for either shaded or sunny banks. Flowers rose color

Up to about 1850, these were the only species of this section of Rhododendron in cultivation and such hybrids as were raised resulted from their interbreeding and that of their offspring. In 1848, *R. Griffithianum* was introduced to England from the Sikkim Himalaya and in 1855, *R. Fortunei* from eastern China. These two species have given birth to many wonderful hybrids, but, alas, all of them too tender for this climate. Other Himalayan species have played a part in the evolution of the wonderful variety of Rhododendrons eminently suited to the moist and mild climate of the British Isles but their influence has not made for a race of value to eastern North America.

In a general way it may be said that Rhododendron breeders in England until late in the nineteenth century kept away from the species as much as possible and intermingled the blood of the best of the hybrids. Some like the famous house of Waterer never lost sight of the invaluable quality of hardiness possessed by *R. catawbiense* and it is these men that we must thank for such blessings as we possess among the present-day race. Latterly the species have been more favored for breeding in England, and in Cornwall since the advent of a host of new ones from China Rhododendrons may be seen in bloom in every month of the year.

Such are the bald outlines of the Rhododendron cult in England and for our purpose there is no necessity to go more deeply into the matter. It lays before us the origin of the present-day race and points clearly to the cause of its lack of hardiness in the severe climate of New England.

THE WAY OUT

LET us now take stock of the field in general. The regions where Rhododendrons hardy in Great Britain grow naturally have been fairly well explored. Not all the species have been brought into cultivation, but to-day we are in a position to take a comprehensive view of the whole situation; and, insofar as the colder parts of this country are concerned, certain facts may be deduced. And it is on these bedrock facts that we must rely and build if we are to obtain the object desired.

Rhododendrons are found wild in the moist temperate parts of the northern hemisphere and a certain group extends through the tropics of Malaysia to northern Australia but for the purpose of this article this group may be eliminated for reasons which are obvious. Evergreen Rhododendrons are essentially mountain plants and a majority grow naturally in woods and not a few are purely alpine. No species has been found in Africa, nor in South America. Of the large-leaved section only four species (*R. ponticum*, *R. caucasicum*, *R. Smirnowii* and *R. Ungeri*) are found in Europe and Asia Minor including the Caucasus. In North America only three species (*R. maximum*, *R. catawbiense* and *R. californicum*) occur. Japan has but three (*R. Metternichii*, *R. brachycarpum* and *R. chrysanthum*). The great concentration is in western China and the Himalaya where more than one hundred species have been discovered. It had been expected that the floral wealth of central and western China would have added a few species to the list of large-leaved Rhododendrons hardy in New England even though the Himalayan region had failed us, but, unfortunately, these hopes have not been realized. Admitting that this is disappointing nothing is gained by dwelling upon it despondently and some of these Chinese species will yet stand us in good stead.

Of the introduced species of Rhododendron with large evergreen leaves five only are hardy in the Arnold Arboretum. These are the native *R. maximum* and *R. catawbiense*, *R. Smirnowii* and *R. caucasicum* from the Caucasus and *R. brachycarpum* from northern Japan and northern Korea. One other species (*R. chrysanthum*) with pale yellow flowers ought to be hardy here for it grows in the cold regions of

northeastern Asia and on the tops of high mountains in Hokkaido, Japan, where I have gathered it in flower on the last days of July with unmelted snow in patches lying around. It is, however, an alpine plant and though introduced to cultivation about 1800 and again about 1850, has never been a successful garden plant. This being the case it is on the above named five species that all our hopes are centered and it is in the commingling of their blood that we must look for the foundations of a race of large-leaved evergreen Rhododendrons capable of withstanding the rigors and vagaries of this climate. And we are really fortunate to possess five species which, as we have seen, is more than was known when the work began in England.

Theoretically, if the parents are hardy the offspring will be equally so but in plant breeding this does not always work out in practice. For example, there are hybrid offspring of *R. maximum* and *R. catawbiense* such as *R. wellesleyanum*, which have proved anything but hardy. Again, in the Arnold Arboretum many plants of Delicatissimum, a hybrid between these two American species and for the last thirty years considered one of the hardiest and most desirable of the Rhododendrons which have been planted in New England, succumbed from the effects of the winter of 1914-15. Thus caution is necessary; but, in cross-breeding among the five species of proven hardiness, there is every possibility of evolving a very tough hybrid race. But to ensure success it should be done in this country as far north as possible, so that the progeny may become inured to the climate from their babyhood up.

Except in time and place such work as is advocated here is not altogether *de novo*. I do not know if *R. brachycarpum* has been experimented with; but the others have, and with encouraging results, especially *R. Smirnowii*, a hybrid of which is giving much satisfaction in the Arnold Arboretum. The Lace-wing Fly is a bad pest on Rhododendrons in which the undersurface of the leaf is smooth and green but it cannot attack *R. Smirnowii* the undersurface of whose leaves is clothed with a felt of woolly hairs. This species promises therefore to be of value in other ways than mere hardiness. In Germany where the climate is more severe than that of Great Britain a certain amount of Rhododendron breeding has in recent years been done and two hybrids—Viola, with white flowers, and Albert with pale pink flowers—promise to succeed with us. But it will not solve our problem if such hybrids are raised and nurtured in lands where a milder climate obtains. Furnish the garden with material grown in a region as cold or colder than that where the garden is situated should be a fundamental rule among garden lovers. If some of us spend a few years in Florida and then winter in Massachusetts we shall feel the cold more than will those who have never left the State and very much more so than others inured to the climate of Labrador. It is the same with plants.

The results obtained by the inter-crossing of the five hardy species will in all probability be lacking in color and pale washy-pink and pink colors predominate, for since none of the parents has highly colored flowers we must not expect it in the progeny. In the historical note it is shown that on this account Rhododendron breeding in England languished for years—until the advent of species from the Himalaya with deep rose, scarlet and crimson flowers. The intense colors in the hybrid Rhododendrons of to-day came from this Himalayan element and especially from *R. arboreum*. Again, our position here is more fortunate than that of English pioneers since the fruit of their labor is at our disposal. To give color to our new race we can employ the red flowered Atrosanguineum, Charles Dickens and H. W. Sargent which are among the hardiest of all hybrids.

Furthermore, the great wealth of material from western China is likely to be of much service for though it cannot withstand New England winters it is much hardier than the Himalayan element and there are species like *R. calophytum*, *R. oreodoxa*, *R. Fargesii*, *R. orbiculare* and *R. strigillosum* with flowers of rich and beautiful colors. These and very many others are thriving and flowering in England where hybrids between them are being raised and by the time our hardy home-bred race is ready ample new material to assist its development will be available.

Gardens are destined to become in this country just as popular and as necessary a part of the home as they are on the other side of the Atlantic and whosoever works for their advancement and embellishment will not labor in vain. On the lines here briefly sketched there is every reasonable possibility of breeding a race of broad-leaved evergreen Rhododendrons capable of withstanding the vagaries of the New England climate and in no respect inferior to the present race of hybrids whose only fault here is its uncertain hardiness. I have no doubt but that sooner or later some one, amateur or professional, will take up the task and succeed and the monument erected will be more enduring than any of bronze or stone for it will have its foundation in the hearts of all who love their country and their home.

EPILOGUE

MORE years of my life than I care to remember have been spent in searching the remote parts of eastern Asia for new plants of value for the embellishment of western gardens. The work has not been devoid of hardship and its spice of danger; but if the art of gardening and the science of horticulture benefit thereby, the years have been well spent.

On my return in the early spring of 1915, from a year's work in the empire of Japan, I was curious to discover, if possible, how much genuine interest existed in this country in the matter of gardens and how widespread the interest might be. After much thought I concluded that a measurable test might be made by publishing a series of articles, general yet comprehensive in character. The kindergarten element had no place in my scheme any more than that exalted in the ranks. The question could be properly answered only by the class who had some knowledge of the art, and in whom interest and love were already aroused. With this object in mind, but not divulged, I approached the Editor of THE GARDEN MAGAZINE. This gentleman encouraged me most cordially and his liberality in the matter of space, his coöperation and the courteous manner in which he has met every suggestion have made the task an enjoyable one. In concluding the series I feel impelled to confess to the Editor and readers of THE GARDEN MAGAZINE the object which prompted these articles.

My question has been answered in a manner that cannot be mistaken. Letters have reached me from East and West, North and South, and from all the States which link these compass points. That there is in this country a universal awakening in the interest of outdoor gardening and to the recognition of the fact that a garden transforms a dwelling into a home, is proved to the hilt. The art of gardening and the love for hardy flowers has come to stay.

Now, in gardening and in the full and proper development of its spirit, there are four elemental forces: the Amateur, the Gardener, the Trade, the Press. Their respective spheres of usefulness are self-evident. They are co-equal and interdependent and each, by itself, can accomplish nothing. Neither can any dual or triple combination of these forces attain anything of real and lasting value. The quadruple alliance is absolutely essential in the art and love of gardening. No one of these forces is the master key, for that is held by the Spirit of man which, no matter how glossed over by the struggle for existence, by the sordid cares of every day life, by ambitious desire for wealth, power or ephemeral pleasures, ever craves for something outside itself, for those innocent joys, and objects of beauty which bounteous Nature has furnished in forest and woodland, in meadow and swamp, in valley and on hill-top. And the more cultured a race or nation becomes, the more incessant grows the spirit.

The present-day energy of each of these four elemental forces could be subjected to criticism, for wholesome criticism is healthful; yet rather would I urge each to consider its function and resolve accordingly.

Arboreta, Botanic Gardens and all plant experimental institutions have a value not yet properly understood, for their collections and experiments demonstrate the wealth of material available and its adaptability to garden needs.

Horticultural exhibitions are a potent agency in furthering the knowledge and love of plants, but if the exhibits were more generally and more legibly labelled the educational value of such exhibitions would be enormously enhanced.

Societies founded for the advancement of horticulture generally and for that of particular flowers are a natural and inevitable outcome of the desire for gardens and for mutual help and intercourse. Garden clubs, so rapidly being formed and so enthusiastically developed, is another most welcome sign of the awakening that is in progress. And so, in laying down his pen, a missionary of horticulture can express himself as satisfied that the people of this country are beginning to appreciate the truth so admirably enunciated by Lord Bacon, when he says of gardens:

"God Almighty first planted a garden, and, indeed, it is the purest of human pleasures. It is the greatest refreshment to the spirits of man, without which buildings or palaces are but gross handiworks. And a man should ever see that when ages grow to civility and elegancy men come to build stately sooner than to garden finely, as if gardening were the greater perfection."

E. H. WILSON.

Arnold Arboretum.

The porch should lead to the garden. This is easily accomplished when the porch is on the ground level

When the porch is elevated above the ground level it can be brought into harmony by the use of climbing vines

House Porches and Their Construction in Relation to the Garden—W. H. BUTTERFIELD, Massachusetts

OF ALL the lands of the temperate zone, America leads in the variety of her porches. While others go on building 42-centimeter guns and aeroplanes, we continue to erect porches, piazzas, stoops, verandas and sun parlors. I suppose that a good average for a well designed, comfortable porch is one to every ten or twelve thousand, but a porch of one kind or another is so important to our life that we cling affectionately to any bit of architectural embellishment we have that resembles this beloved accessory. It is as vital to us as the sidewalk café is to the Parisian. We are reluctant to leave it in the autumn and welcome spring's first warm day to rush out the table and the chairs and install ourselves for another season. I said "accessory," but I think I am wrong in using this term for the porch now shares with the living room the honor of being the centre of the home.

The porch has, or should have, a vital function to perform. It should lead us to the garden. What a magical word —garden! Who does not dream of having a garden? All of us who have not one; and furthermore we all wish it to be beautiful in its own way and fashion. For our beautiful garden we want a beautiful porch, beautiful in its design and construction.

There are, roughly classified, two types of porch, (1) the porch which is an integral part of the house, and (2) the one which is detached in that it is built *against* the house and could be removed without changing in any way the house itself. The porch connects us in a pleasant fashion with the garden, so let us talk of the ones we are going to build to our already erected house and which would come under the second classification, to wit, detached porches.

It is most unfortunate if our first-floor level is so high above the grade as to necessitate the porch floor being raised very much above the garden level or the part of the garden which touches the house. A raised porch, no matter how well designed, loses its charm when one is unable to step directly from it to the ground without descending a flight of steps; if possible let there be not more than two steps down. The ideal to be sought is the feeling that even when on the porch you are living in your garden or grounds.

The porch properly placed is an ideal vantage point to view the garden. Tile is a substantial flooring

It goes without saying that the design of the porch must be in keeping with the design of the house. That is to say, its style, form of construction, detail shape of roof and the like. For example, a massive stone porch attached to a light frame house is laughable. To design a successful porch takes much careful study. A poorly designed one will ruin both house and garden.

Naturally, the size of a porch is governed by many conditions, some of which cannot be changed. The length of the side on which it goes is one, also the ground at your disposal; in general, the width of a dining room. You will have a table and chairs, undoubtedly, and while the table may not be quite as large as the one in the dining room, the same principle holds; that is, circulation. I should say ten feet gives a minimum width for a porch, while twelve is much, much better. These dimensions are in the clear and do not take into account the supports or walls. Make the length as great as possible at the same time consistent with good design and proportion. A floor space twelve by twenty-four feet is excellent, and is

large enough for the average family for it gives a place for table and chairs and plenty of open space for circulation.

By all means let us have a good foundation. Whether the porch is supported by piers or walls let them go down at least three and one-half feet below the grade. Get them below the frost line. Alternate thawing and freezing underneath a footing will soon throw the superstructure "out of plumb" and possibly cause serious damage. The cheapest supports are wood posts which should be of locust or chestnut. But don't use wood unless necessity compels it. Use the same material as for the house foundations. These may be brick, stone or concrete, and are put in place following the same specifications as for masonry used in any other way. Stone and brick are set in cement mortar which may be white or colored and the joints raked or flush as the case may be. If it is impossible to have the floor close to the ground wood framing and flooring will be found the cheapest and easiest. The timbers are as stout as those used in the house. Sill pieces being halved at the corners and well bedded in cement mortar if there is a foundation wall. The rough framing is of good material, say spruce. Be sure that the floor beams when put in place are parallel with the side of the house, for when the floor boards are laid over they will have their joints run *away* from or at right angles to the house. So there is always a pitch provided (this is one eighth inch to the foot), the boards laid in this fashion conduct the rain water easily to the outside edge of the porch and do not hold it as they would if the joints were in the other direction. The boards are always joined together with white lead which keeps the water from working through. The best flooring is white pine and this is the right wood for all finished stuff such as the supports, railings and cornices. Two-by-six inch roof rafters will be strong enough for all roofs except wide ones of heavy tile where two-by-eight rafters are safer.

Flat roofs are not as permanent as pitched roofs, but it may be necessary to have one where there is not enough room to pitch. Frequently one desires to have a flat roof in order to walk out from a second story room. There are two coverings for a flat roof which are in general use. One is metal (tin or copper), and the other is canvas. Both are laid over boarding, the metal having a heavy paper to deaden the sound. If the roof is to be walked upon, and is tin or copper, there must be a wood grating for protection but this grating should be removable in order to clean or repair. The tin and copper are laid with flat seams nailed and soldered and the tin is painted on the underside before laying and on the upper side when perfectly clean and all rosin washed off. Painters are very apt to neglect this precaution of having a perfectly clean surface. Copper needs no paint.

Canvas is stretched over a coat of thick fresh paint (white lead and linseed oil) and is then painted several coats on the upper side. Any first-class carpenter understands this work. For pitched roofs shingles fill the bill in ninety-nine cases out of a hundred. Shingles are laid over shingle lath and should not have more than five inches to the weather; four and one half is better. Most shingles nowadays are of cedar. Slate are more permanent as are tile and the discussion of these materials was treated with care in the April number. Where we have a masonry construction for the porch and the latter is an after addition to the house, some sort of a bond is necessary between the new walls and the old. With concrete a rough surface may be picked on the old wall for the new one to join to. With a solid masonry wall or piers, it is safer to have footings of concrete to support them. These are about eight inches thick and extend six inches on all sides. By doing this they distribute the load on the soil. Stucco is laid over brick or tile or may be on frame. In this case the sheathing boards are covered with building paper and metal lath (galvanized) which is nailed to wood strips tacked over the paper. Arches are easily formed when stucco is employed in this fashion.

Viewed from the garden, the porch becomes the natural harmonizing factor between it and the house itself

The best effect is attained when the porch construction follows closely that of the house to which it is attached. Stone columns for the stone house, etc.

For a permanent floor that combines beauty with utility, there is nothing like brick or tile. But for these it is absolutely necessary to have a firm under support. The space is filled in and well tamped, using stone if possible, and over this is put a layer of cinders. Next comes four inches of concrete and if bricks are used a layer of sand. The bricks are set in any pattern desired. Flat or on edge, herringbone or plain, with borders or without. When the bricks are in place they are grouted with cement mortar and cleaned up. Tiles are set in cement mortar directly over the concrete. Irregular shaped flagstones in white cement mortar with varying joints give a touch of the garden to the porch and are quaintly out of the ordinary.

With tile and brick the charm lies in the wide range of color, texture and pattern. We have all the colors imaginable, with textures that are rough, smooth or variegated to suit the degree of formality desired.

A good flat roof for a porch of brick or stone is one of tile. First reinforced concrete beams are put in place between which terra cotta tile are placed. The method being to put the tile in the proper position supported by boards at the edges. The boards hold the tile and concrete until set; the latter making a bond with the former. Over this is spread concrete which is waterproofed thoroughly and the tile come last, well grouted with cement. Only copper flashing should be used against the walls.

The gutters, leaders and flashing are the same as for the house. Copper is far and away the best but is frightfully expensive, more so now than ever. Tin, well painted, for flashing, and galvanized iron for the leaders and gutters saves a great deal in expense. Galvanized iron must be frequently painted. All places where the porch roof joins the house should be well flashed whether the roof is flat or pitched.

Try to have the porch in keeping with the garden. If there are brick paths in the garden, have a brick floor for this will delightfully connect up the two. If there are trellises, use lattice intelligently on the porch. While lattice is beginning to be overdone, its use, if well studied, is a valuable adjunct. Use it sparingly, but well placed.

The marginal fringe of big trees is helped out with Hemlock, Arborvitae, etc., as a screen

Lily-of-the-valley is the best herbaceous ground cover close up and around the trunks of trees

Making the Best of It — STEPHEN F. HAMBLIN, Massachusetts

IV. What Will Grow Under Lawn Trees

[EDITOR'S NOTE.—*Each article in this series deals with a different commonplace problem. While it may be possible sometimes to remake a soil to fit certain preconceived desires in planting, it is generally much more practical (and unquestionably better gardening) to find the plants that really belong to the soil and conditions and use them. This method gives more lasting results and a feeling of fitness.*]

OF ALL places trying to the patience of the garden lover the most conspicuous is sure to be in the immediate vicinity of the house, in the lawn right under the largest trees. Patches of plain bare earth the year round seem to be satisfying to nature, for the lawn grass refuses to grow, no matter how you coax it. Maybe you have not tried the right kinds; you might ask your seedsman for some of the Fescues, particularly Festuca heterophylla.

It is not altogether the shade and drip from the trees, for grass grows under those on the farther parts of the lawn, but the soil is sure to be poor and too well-drained near the house, unless the grading was carefully done when the house was built, and continuous walking over the spot does not help matters. If grass can be made to grow it is without doubt the best ground cover, for there is no more an artistic reason for dotting beds of flowers under the lawn trees than in the open spaces. But if grass won't grow, then something else must be used, for it is no garden virtue to display barren areas between the house and the street.

Now, there is a most marvelous difference in the effect of specimen trees upon the growths beneath them. I am speaking now of specimens of at least fifty years' growth, venerable giants that have a wide and well-established root system, whose real feeding roots are several yards from the trunk. Under young trees the best cover is grass—Bluegrass, Red-top, Bent, etc.—in a soil that is undisturbed by manure or spade after the tree is properly set. Let none think that I advocate the "ring-around-rosy" planting seen about young lawn trees. A ring of Barberry, Golden Glow, or Scarlet Sage about a sapling is bad business, slow starvation for both parties, and an arrangement of no horticultural or artistic merit.

Specimen conifers, as Spruce, Fir, Hemlock, Arborvitae, require no ground cover. If well-grown and symmetrical the lower branches hide the soil and sweep the lawn on all sides. This is as it should be, and there is no bare spot problem. But such open conifers as White Pine and Norway Spruce, having by chance or design lost their lower limbs, give us a planting problem to worry about. An herb that will thrive and increase under a dense White Pine whose lower limbs are no more than ten feet from the ground deserves special mention. Japanese Spurge (Pachysandra terminalis) will do this, and we may discover others.

THE DIFFICULTY OF THE BEECH

It is not all easy sailing under deciduous trees. Nothing usually grows under a Beech but a green mould on the soil crust, but I know one spot where Garden Crocus (Crocus vernus) comes up in masses year after year under an enormous European Beech. Near another home Siberian Squills (Scilla sibirica) flourishes *inside* a privet hedge, so I fancy a Beech tree would not discourage it. The commonest specimen lawn tree in the northern "original states" is the American Elm, and if that tree is not monarch of all he surveys then none deserves the title. The fine feeding rootlets fill the soil surface from trunk to far beyond the ends of the branches. Grass is supposed to give up there—the soil belongs to the Elm; yet under a massive specimen of unusual thick and spreading top I have seen for years a happy colony of Grape Hyacinth (Muscari botryoides) close to the trunk. What the little bulbs live on is beyond my understanding—the soil is so full of Elm roots that you can't get a spade into it. On the other side of the tree there is a big bed of Myrtle (Vinca minor) nearly flowerless, it is true, but thick and green the year round.

For density of its shade no tree can rival the Horsechestnut, and a real big fellow has a scanty lawn beneath it strewn with débris from above—leaves, leaf-stems, and fruit. Yet I recall a turn-round in front of a Colonial mansion that was an even carpet of Lily-of-the-valley (Convallaria majalis) while in the centre was a magnificent Horsechestnut as high as the house.

The very worst cases are bad indeed, for light, food, and moisture are cut down to a degree below the minimum requirements for most plants and the soil is in a condition very unfavorable for the root growth of small plants — the tree exhausted it long ago. To replace the soil would destroy many tree roots and new roots would soon come in again. It is better to turn up the soil as little as possible and trust to plants to cover it.

Low shrubs are the quickest solution, and if evergreen so much the better. Of coniferous evergreens the only candidate is Ground Hemlock (Taxus canadensis) a native of our Northern woods, and scarcely to be domesticated on our lawn, but sometimes it will grow amazingly well under Hemlocks, Oaks, and other forest trees. You might substitute the dwarf form of the Japanese Yew (T. cuspidata var. nana), but it does not grow very fast. Dwarf Junipers are ruled out because they insist on sun.

Of broad-leaved evergreens we have tried two, English Ivy (Hedera helix) and Evergreen Bittersweet (Evonymus radicans); in each the small-leaved forms are the best. Neither likes flat work on the ground and prefers to tumble up in bunches or climb up the tree-trunk. Still they will exist in dark damp corners where any other vine would go on a hunger strike. The Ivy has greater endurance, from New York southward, but the Evonymus makes a more dense cover. A true ground cover is our native Running Strawberry bush (Evonymus obovata) but it refuses in dense shade, is frankly deciduous, and balks so much that the weeds get ahead of it.

The two most common deciduous vines used as ground cover are Hall's Honeysuckle (Lonicera japonica var. Halliana) and Akebia (Akebia quinata). Each makes a tangle of stems, and flowers but little, and, as the shade becomes more dense above, will slowly die out. If either can reach the lower limbs of the tree it will quickly scramble to light above and then there is trouble. The one perfect woody ground cover is yet to be discovered, but Evergreen Bittersweet is in the lead as yet.

Among perennial herbs the range is greater. Our forefathers found help in Lily-of-the-valley and Myrtle, and you can hardly improve on them to-day. A third favorite was Moneywort (Lysimachia Nummularia) and "Creeping Charlie" has learned to toddle along under the roadside trees choking out the grass. You had better try "Money" or Myrtle if you have had trouble in making the grass take hold.

A PERENNIAL GROUND COVER

The perfect perennial ground cover comes from Japan. Though useful in many places the Japanese Spurge (Pachysandra terminalis) is the true friend of the gardener under trees. Where even Myrtle has refused Pachysandra will stay forever green, even if it grows but slowly. Unless water stands upon the soil in winter this herb will hide all bare spots. If you haven't seen it, order a dozen plants from any nursery and watch their growth. There is an American species, from the Alleghanies (P. procumbens), but as it is not evergreen its virtues are as nothing.

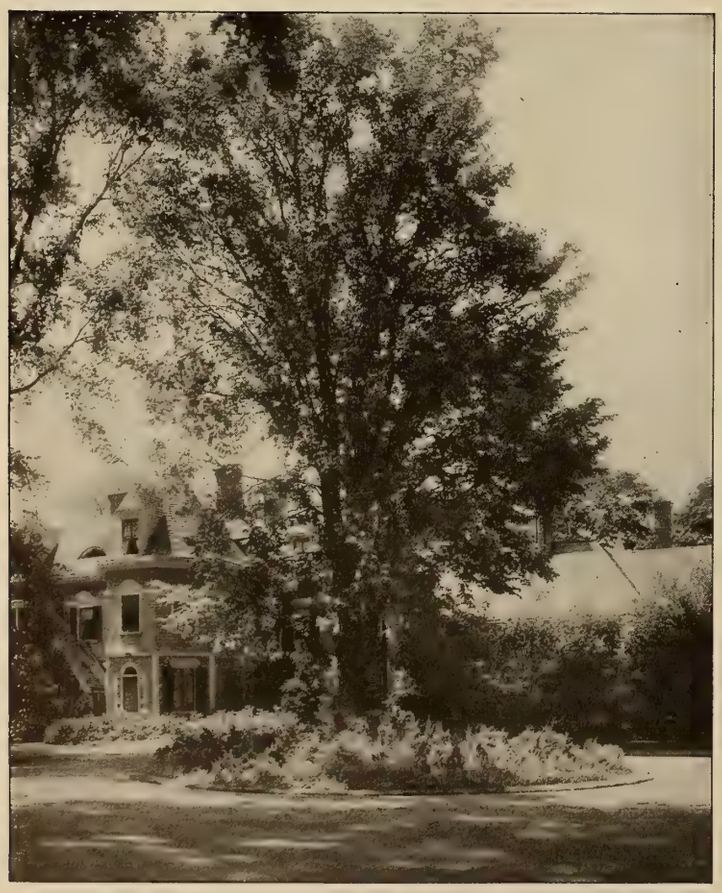
There is not much more to offer after Pachysandra has been introduced. Nearly as good are the Wild Gingers, not the common one (Asarum canadense) of Northern woods, for that is deciduous and insists on rich woods, but the species from Europe (A. europaeum) whose round dark green leaves spring from a creeping rootstock, and one from the mountains of Virginia (A. virginicum) which makes clumps of evergreen foliage.

If you want large evergreen leaves consider the Megasea Saxifrages (Saxifraga cordifolia, S. crassifolia, S. ligulata), all much alike in a general way. They are not too hardy in the Northern states, they want a little sun in spring, and they refuse altogether to swim in winter. It's too much to expect of any plant — no light, no food, no water all summer, and wet cold feet all winter.

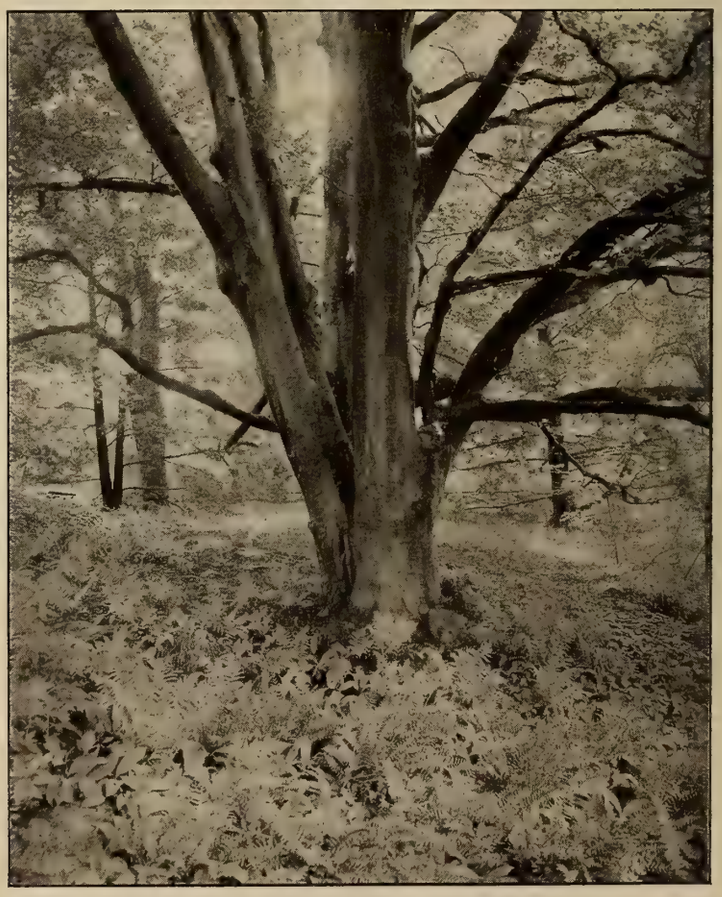
The best deciduous herbs for cover, after Lily-of-the-valley, are the Waterleaf sisters (Hydrophyllum virginicum, H. canadense, H. appendiculatum). The last may be biennial, but it seeds freely, and you can't tell "which from t'other" unless you are a botanist. The five-parted leaves are the chief attraction, as the clustered bluish flowers are somewhat hidden by the foliage. They would not grow under Elm, but prefer such trees as Ash and Maple.

For delicate leaf effect I insist on Crown Vetch (Coronilla varia), for though it won't flower as it does in open meadows still the slender stems and small leaves give a pleasing mat of green until frozen by winter.

Ferns of course you have, and the amount of moisture in the soil decides the sort to use. The small and delicate kinds get trodden upon or flattened by the lawn mower or the family dog, so I'd prefer the stiff erect ones, and omit the evergreen fellows also, for they grow more as specimens than in mass. The Cinnamon Fern (Osmunda cinnamomea), Clayton's Fern (O. Claytonia), Ostrich Fern (Onoclea Struthiopteris), and for great sods of fern the Hay-scented Fern (Dennstaedtia punctilobula) which you find in the catalogues or dig from the woods under the common scientific name of Dicksonia.



The question of exposure to sun is to be considered. Under deciduous trees as here, low evergreens may be used if given light and due care



Native ferns and Lily-of-the-valley have solved the problem under this fine Beech tree in a Massachusetts garden

Overhead sprinkling system for making "artificial rain." The entire length of pipe is easily turned to any part of the arc by means of the lever at end

Irrigation, Watering, Sprinkling—FLETCHER STEELE, Landscape Architect

A REVIEW OF THE MAIN ADVANTAGE POINTS OF THE VARIOUS ARTIFICIAL SYSTEMS OF SUPPLYING WATER TO THE GARDEN AND GROUNDS—FACTORS THAT DECIDE THE CHOICE FOR A GIVEN CASE

HEAVEN may be an attractive place of residence, but it is a very unreliable source of water supply. Instead of praying for showers in time of drought, let gardeners praise God for galvanized iron pipe. With it they are comparatively independent.

"Watering the garden" is a familiar process; yet how few have looked beneath the surface of the universal problem. Literally speaking, how few have looked beneath the surface of the ground, after giving the plants their bath, to see how deep the water has gone. Yet depth of penetration is of fundamental importance. In giving advice about irrigation, the first rule is to prepare the physical character of the soil so that it will deeply absorb water and hold it long, yet not long enough to become stagnant, nor in such quantities as to be waterlogged. This means subsoiling and providing drainage; humus in quantity; sand in heavy clay or vice versa. With so much done, proceed with cheery confidence that your water bill will not be near so high as your neighbor's and your results will be better. Proceed you must, however. Plants would not live in ideal soil without water. A large part of all plant substance is water. Scientists tell us that plants absorb food only in aqueous solution.

There are three methods of watering: The first is to manufacture a fake, minutely localized, shower of rain; the second is to pour water over the ground as the Nile overflows its banks; the third, is to give the garden a hypodermic injection through underground pipes.

The last method is more sensible than it sounds. In books it is called subirrigation. Lines of drain tile are laid under the garden beds and at intervals filled with water. This water percolates through the soil, rising and spreading about to meet the plant roots. The law of gravity may largely be defied by a drop of water, once it gets underground. It is an added advantage of this system that the same pipes can be used to remove excess moisture at certain wet seasons of the year. When laying the pipes remember that they must be near the surface to get results—eight inches is best though one foot is more convenient as being below the depth of a light spading. The lines of tile must not be more than four feet apart.

Subirrigation is an excellent lazy man's method of watering. But there are several outs about it. It requires a good deal of water; pipes must probably be relaid each time the beds are trenched; the joints are apt to get clogged with roots; and the distribution of water is uneven. On the other hand it makes a dry soil wetter and a wet soil drier; it requires little head of water; air, entering the pipes, serves thoroughly to aërate and improve the physical character of the soil; and lastly, the water does not cake the soil surface.

Surface flooding is of paramount importance in the cultivated regions of the semi-arid West. As yet it has been but little used in Eastern gardens. Indeed it is doubtful if it ever will be much employed in flower beds, though where cut flowers and vegetables are grown in straight lines and furrows it has possibilities. For Simon pure irrigation, series of ditches are dug around and often across gardens and lawns. At intervals they are filled with water which is distributed in streamlets to be dipped out; or broad sluggish floods pour over the whole area. This scheme has many advantages. In the first place the distribution of water in proper amounts can be scientifically controlled. With a little experience, one soon knows just when the garden needs one or three inches of water and immediately the means is at hand to provide it. The gardener soon learns that it is better to water thoroughly once a week or fortnight than in daily driblets. The cost of installation is low and very little pressure is needed in the water supply. Stream or pond water can be used. It is simple, if tricky, to operate. There are no parts to clog. With a copious supply of water it may be well to use

An underground system for lawns in which the water is sprayed over a circle

surface flooding, especially to supplement other systems in bad droughts.

But its disadvantages are many. Who wants to see ditches dug all over the garden? It washes the soil—indeed it is impossible to use it on steep slopes under ordinary conditions; the soil cakes on the surface unless carefully tilled at just the right time; lastly, it takes considerable labor which, in the East at least, must be skilled.

There is a new contrivance from the West that may prove useful here. It is composed of a large flexible hose with adjustable apertures at intervals. Made for use in connection with ditches in Western gardens, etc., we can use it on flat or gently sloping lawns. Surface flooding is an excellent way to water lawns. A somewhat similar home-made apparatus was described in THE GARDEN MAGAZINE of August, 1915. By the way, subirrigating and surface flooding leave our lawns and gardens entirely dependent on occasional showers for the foliage bath, which is as necessary to the health of the plant as our morning tub.

Surface flooding is invaluable in the Rose garden; no other method of soaking the roots can compare with it. In one of the most beautiful Rose gardens of America this flooding is very simply managed. A broad plank is laid down between the rows and the hose is laid on it and left running. The water runs off around the board which prevents bad soil washing. When the ground is thoroughly soaked in one place the board is shifted.

But subirrigation and surface flooding are dull and colorless methods of irrigation compared with squirting water. I defy the most hardened citified sniffler at country life not to itch with longing when he sees a garden hose, or to thrill with satisfaction when he has finally wheedled it from his friend's gardener! Romance—youth—lost? Never, while we have the garden hose!

Professional gardeners will tell you that the simplest is far the best method of using the hose. Your real gardener will use his thumb at the end of the hose in preference to the most expensive and desirable nozzle. He says that with his thumb he has complete control of the stream which can be changed from a heavy stream to finest spray with a mere twitch of the digit. As different plants, in all stages of growth, require different baths, the advantages of his method are not to be controverted. Nevertheless, it is by such exercises that he becomes a horny-handed toiler. Dilettanti—for such are all save professionals, no matter how earnest our work and enthusiasm—are rarely willing to sacrifice their soft, comfortable skin when such admirable nozzles are for sale in the nearest hardware shop.

Adjustable hand nozzles are now so made that the stream control is quick and easy. They are less liable to clog than the fixed spray nozzles. They require more pressure than the hose without nozzle but otherwise work about as well. In using them one soon learns that the coarse spray is apt to injure fine foliage and flowers, besides washing the soil badly.

Some nozzles are made with fixed

Overhead system based on central distribution point whence the water extends in a circle

sprays. They require but moderate water pressure, but on small areas or narrow strips much water is wasted. On small or complicated areas hand sprinkling with a watering-pot is best. Indeed, it is always necessary in the garden to supplement more extensive systems. The rose spout on the end of the watering-pot with the gentle force of head behind it is nearer like a pleasant shower than any other artificial system.

Sometimes it is found desirable to attach the rose spout of the watering-pot as a nozzle on the hose. I know one gardener who contrived an excellent device in this connection. He attached the rose and then tied the last six feet of hose onto a light bamboo pole. With this he is able carefully to water the far corners of his deep borders from the path.

When it comes to patent sprinkling aparatus there is such a great variety from which to choose that it is necessary to proceed with some care. All these apparatus come under two principal groups—on movable base or on

The pipe in this application of the jet spray to lawns is hidden from view

fixed pipe lines. The fixed systems involve the greatest initial outlay, but they are most economical of labor and wear of apparatus. They can be adjusted to cover any given area thoroughly and evenly when installed, obviating the uncertainty which results from the personal equation. Movable sprinklers cost less for installation, but the expense involved for upkeep and operating amounts to a great deal in the course of a few years. With movable sprinklers there is danger of reducing the water pressure needed for efficient operation by having too small hose or too great a length. Hydrants are required at frequent intervals.

Movable sprinklers should be more durable than fixed sprinklers as they get more wear and tear. They should have firm bases so that they can not be easily tipped over. It is a great advantage to be able to move them without turning off the water. Because of the labor involved in moving them they should cover the largest area consistent with the pressure at one setting. It is wise to have them adjustable to different sorts of sprays according to the needs of the area covered.

The fixed pipe line systems must be carefully adjusted exactly to cover a given area. They must be easy to control and economical to run with the pressure offered. When placed in lawns flush with the surface, as is done with one or two sorts, they are liable to injury from wagon wheels on the more formal visits of the chore man. So they should be placed where least liable to injury. It is also necessary to have them where they will not interfere with other functions when not in operation. It is a nuisance not to be able to run the lawn mower over them, for instance, or to have little holes in the turf into which one stumbles on moonlight nights. Last, but not least, they should not be placed where unsightly piping is in full view in flower garden or lawns. It is scarcely necessary to go into detail about fixed pipe line systems since the field was so admirably covered in THE GARDEN MAGAZINE for June, 1915.

Usually the area covered by the spray from a single unit, either movable or of a fixed system, is circular, or a sector of a circle. It is easy to see that in order

to cover a total area part of the ground in this system is covered twice, or else dry areas are left between the different circles as the fixture is moved from place to place. This is somewhat obviated by having the water broken up into a fine mist. Under such circumstances a much larger part of the water than is necessary is evaporated, however, and if there is any wind the spray will blow about without regard for the particular area which it is intended to wet. There are nozzles which throw a rectangular spray; in large areas they reduce the waste from overlapping. They can be arranged to cover a narrow strip and may be used with considerable accuracy along edges of walks, etc.

On lawn and small herbaceous plantings the nozzle should be as low as possible to reduce the waste from evaporation and the drifting of spray. In tall shrubberies, however, the water must fall from a height to overcome the various obstructions in twigs and leaves. As a matter of fact, it is usually necessary to supplement any spray system with flooding or hand watering.

When it comes to selecting a nozzle I would remember that a fine mist-like spray is usually the best, being especially necessary in watering tender crops and on steeply sloping ground. One can cover a larger area with a coarse spray, given the same pressure, however. Consequently on lawns and larger shrubbery it is often best to use it. But it is apt to result in less even distribution of water. For all-round use one should have a nozzle which can be adjusted to fine or coarse spray. With most of the apparatus the finer spray falls more uniformly over the whole area covered. Indeed objection to adjustable nozzles is that they are apt to vary in uniformity of distribution. It is possible to get sprinklers which distribute water uniformly, however, as fine or coarse spray. The way to test any apparatus is to set a series of bowls at intervals of three feet from the sprinkler to the limit of the area covered in a straight line. If all the bowls fill with equal rapidity the water distribution is uniform.

All sprinklers are more or less apt to clog up with dirt. Naturally those with numerous small perforations are the worst offenders. It is now possible to get a sprinkler with a single large funnel shaped aperture into which a cone shaped piece of metal fits upside down. By screwing this cone farther down in the funnel one gets finer and finer spray. It is so made that the distribution, whether fine or coarse, is always uniform. It is almost impossible for such a nozzle to get out of order. And if it clogs it takes but a moment to clean it out. With any nozzle it is an advantage to be able to take it apart easily for cleaning. Some of the manufacturers try to avoid the difficulty by putting strainers in the pipe. But in time the strainers themselves clog and are troublesome to clean. Especially in systems of fixed nozzles they must be so accurately constructed as to operate uniformly through a long period of time.

It is quite practical to have the irrigation pipes follow the contour of the ground and agree with curves in walks, etc.

Types of Sprinklers in General Use

A. The spray made by numerous small perforations, either fixed or revolving. Usually easily clogged—some sorts durable but usually not. From cheap to rather expensive.

B. Spray from fixed nozzle with single aperture. Not easily clogged; durable.

C. Spray from single nozzle with revolving spoon, etc. Liable to clog; coarse spray; not durable.

D. Spray from one or more revolving jets. Cover large areas; vary in other respects.

E. Series of nozzles on a long portable or fixed pipe. Good for large areas.

F. Other fixed systems.

In regard to "ornamental" sprinklers, it is necessary to ask oneself whether the appearance or the efficiency as an apparatus for irrigating is the more important function. There is not space in this article to take up the question of "ornamental" water. Efficiency is the thing and most "ornamental" sprinklers do not distribute the water most effectively in proportion to the pressure. They are apt to be unwieldy and undurable—I was about to say, unendurable.

Several times I have had occasion to mention the water pressure. This is a much more important matter than at first appears. The ordinary pressure with a good town or city supply is apt to be between thirty and fifty pounds per square inch, but in many places it falls as low as fifteen pounds per square inch.

Any apparatus which makes the slightest pretense should operate with maximum effect under a pressure of fifty pounds. But at fifteen pounds it is quite a different matter. I would not advise the same sprinkler for high as for low pressure. The only thing to do is to know what your own water pressure is and buy accordingly. As a rule the greater the pressure the finer the spray. It is well to remember that the pressure is reduced by every extra foot of pipe or hose owing to the friction. This is an especially serious matter with small size hose. So one must look ahead to see how long the pipe and hose will be, making allowances for the reduction in pressure after the water has entered the first supply pipe.

The pressure is also very much reduced when the water is used for more than one opening at a time. We see examples of this every day when half a dozen faucets are drawing water simultaneously in a house. The moral of that is to have a large water supply pipe no matter what the pressure. A 2-inch pipe is none too much for the average garden, though few are larger than one inch. Of course it is nonsense to have a 2-inch garden supply pipe extension of a 1-inch or 1½-inch main supply. With a large supply pipe and a good head one can cover a given area with the least possible waste of time and labor.

For large pleasure lawns, tennis courts, etc., some adequate means of summer watering is necessary. If these are to be played over, a revolving movable spray fed by hose is best; but some permanent installation is often possible. It is important to get a proportionately even distribution over the circle

THE MONTH'S REMINDER

JUNE, 1916

For reckoning dates, the latitude of New York City is generally taken as a standard. In applying the directions to other localities, allow six days' difference for every hundred miles of latitude

IF YOU are a member of the Universal Garden Club of America (unofficial), you should be willing, for the sake of yourself and your fellow members, to agree that you will not be a June "slacker." Every year, about the middle of this month, that fine April enthusiasm commences to wear off. Then the real gardeners begin to show up in the ranks.

This Month's Big Job

IT pays to spray! That statement has been oft repeated but fully one half of all who garden have failed to grasp the full meaning of those four short words. The chances are that *you* lost something in your garden last year that might have been saved by spraying. See if this year you can prevent it.

Most spraying is done for one of three definite purposes; first, to kill *chewing* insects by poisoning the food that goes into their stomachs; second, to kill *sucking* insects by coating them over and smothering them or by destroying them by contact; third, the prevention and the restriction of plant diseases by coating the surface of leaves and stems so that the disease germs or spores cannot find a foothold to start or to spread.

No matter for which of these purposes spraying is used, there are two factors absolutely essential to success. First, that the right spray or mixture be used for the particular insect or disease to be fought; second, that the spraying will be done so thoroughly that every particle of the surface will be covered or every insect reached with the spray.

There is nothing mysterious or complicated about this spraying business. A good deal of the confusion which seems to exist is doubtless due to the fact that there are so many commercial preparations on the market, and the solution of this trouble is much the same as in learning to select vegetables: Buy not by *name*, but by *type*. For instance:

1. *For insects, bugs or worms which chew* and actually consume portions of the leaves or fruits of the plant, use an internal poison such as arsenate of lead paris green, or hellebore, or preparations thereof.

2. *For sucking insects*, use a soap or an oil spray which will smother them, or a nicotine or kerosene spray which will be fatal by contact. There are plenty such combinations on the market under various proprietary names.

3. *For diseases* such as fungus or blight, keep all the new growth covered by spraying with bordeaux mixture or ammoniacal copper carbonate solution.

It is usually more convenient for the small grower to get these things in commercial preparations, ready for immediate use when diluted. But remember that it is the substance and not the trade name which will do the killing. In buying a tobacco extract preparation, for instance, the important thing is the percentage of nicotine, and not the number of colors used in printing the label.

Combination sprays. Wherever possible, save yourself work by using a combination spray and kill two bugs with one splash. For example, you can add arsenate of lead or paris green to your bordeaux mixture; or nicotine extract to your arsenate of lead spray, if you happen to have both eating and sucking insects to combat. There are a number of good, all-round commercial preparations on the market, which save even the trouble of mixing two sprays together.

Dry spraying. Within the last few years, great development has been made in the manufacture of spray materials where they are in powder instead of paste form. These can be used in wet spraying or, in many cases, can be dusted on in the dry state. In the latter case, be sure to follow directions specifically, as dust forms should be sifted on when the plants are dry, rather than when wet with dew. For wet spraying, the dry form of the material is preferable to the paste in several ways. It keeps longer and better, is of a uniform strength, will go into a solution more quickly and will not settle so rapidly. In purchasing powder insecticides or fungicides, however, be certain to get the kinds that have been thoroughly tested out.

Have a definite spraying schedule. For fruit trees, Roses and a number of garden crops such as potatoes and beans, you should have a regular spraying schedule to be followed closely, whether there is any particular sign of the special insect or disease you are after having appeared or not. If you wait to see, it may be too late. Study the whole spraying proposition carefully, get what data you can and make up a little table with dates to follow for your own crop. This will save a good deal of time and bother and will give infinitely better results than to wait until the trouble starts.

EARLY THIS MONTH

PLANTS from pots. The tender things which it may have been unsafe to set out until this time should be got into the ground as quickly as possible *when all danger from a late frost is past.* If there is a delay of a week or ten days here the stuff will never recover—particularly if allowed to become either pot-bound or "drawn out" before transplanting.

With the great number of things which it is now possible to get from the nurseries as "pot grown" plants, one may set out quite a complete garden even in June and get results *this* year.

"Three Bites to a Berry"

TO GET the biggest and best berries or a big yield from a small plot of ground, the hill system of growing berries should be used. For the home garden of a limited area it means little if any more work than with the regular method. The great secret of success is in getting good strong plants to set out in July or early August. Select runners from the best producing plants and peg them down with clothes pins, to hold them in position, and under each place a three or a three and a half inch pot. Unless the soil in the bed is rich and fine, fill these pots with a mixture of half humus and half garden soil. Sink them level to the brim. A clothes pin will show where the pot is when you want to take it up. If irrigation is available, water thoroughly after placing the pots. As soon as the plants are well rooted they should be cut from the parent plant and all further runners should be pinched off as soon as they form. This will give you a good strong young "crown" with a compact, ready-to-grow ball of roots, within a few weeks. Suggestion for planting will be given next month.

Water Lilies

DON'T be afraid of Water-lilies! Few people realize that Water-lilies are not limited to the pretentious "estate." There are certain conditions which they require. But these are simple, and once arranged they may be grown as easily and as successfully as many of the common garden flowers; in fact, they are much more free from insect troubles. The essential conditions are: First, water, but not running, and not too cold; second, full sunshine; third, a suitable soil. The water may be contained in anything from a half-barrel sunk level with the lawn, to a lake. A small artificial pond may be made very cheaply. Two feet is sufficient depth, about half this being used for the soil. The best soil is made from swamp or pond "muck" with rotted manure—preferably cow manure—added. Or use heavy soil in place of the muck. Some fish should be provided, as they help to keep the water pure. The tender Lilies should not be planted until after danger from frost, and the hardy ones may be planted at the same time. The cost of plants is not great; most varieties may be had for from twenty cents to a dollar, and the hardy sorts will last for many years. If you want something really beautiful, and a little "different," try a few Water-lilies this summer.

Plant this Month

¶ **Vegetables,** *from seed:* beans, lima beans, corn, cucumbers, melons, martynia, okra, pumpkin, squash.

Succession crops: beans, beets, carrots, corn, cucumbers, kohlrabi, lettuce, peas, radish, turnips.

Plants: In Northern sections, from frames; lima beans, corn, cucumbers, eggplants, melons, peppers, squash, tomatoes. Toward end of month, from seed bed; Brussels sprouts, cabbage, cauliflower, celery, kale, leek, late tomatoes.

¶ **Flowers,** *from seed:* tender annuals, such as Balsam, Begonias, Castor-oil Bean, Dolichos, Impatiens, Portulaca, Salvia, etc.

From pots: tender bedding plants, such as Begonias, Heliotrope, Musa, Salvia, etc. For late gardens; Roses, hardy perennials, etc. (from pots).

¶ **For fall and winter,** *in seed border*, to transplant later to pots; Antirrhinum, Begonia, Carnations ("pinks,") Geranium, Heliotrope, Lobelia, Mimosa, Petunia, Stocks, "Silk Oak," Verbena.

¶ **Bulbs and tubers,** Callas, Caladiums, Gladiolus (succession plantings); Cannas, Dahlias, etc., where not already planted.

Keep 'Em Coming

THE chief reason why those "first" peas or beans or ears of sweet corn or beets taste so scrumptiously good, so infinitely better than the later "pickings," is that you can't resist the temptation to take them when they are in the flush of youth. Plant such things in small quantities and plant often. See accompanying table for suggestions. In planting now, if the soil is quite dry, and drier weather seems impending, don't be afraid to plant *deep*, two or three times as deep as you made the early spring plantings. A good plan with large seeds like beans and peas is to open a deep furrow, down to moist soil, and then plant about the usual depth at the bottom of that. If the soil is well firmed they will be up in a few days, and then the furrow may be gradually filled in. To get a stand of lettuce or other small seeds in dry weather open up a small furrow, drill in humus or humus and soil mixed half and half, water thoroughly, and as soon as sufficiently dry, plant and firm. *Firming* the soil about the seeds, with the sole of the foot or the back of the hoe, is of great importance in dry weather.

BEFORE THE END OF THE MONTH

TAKE out an insurance policy on your garden. Are you going to do it again this year—spend your good money for seeds, for plants, and for fertilizers, to say nothing about the hours of joyous backache, and then have to sit while day after day goes by without rain, and things gradually stop growing and become tough and tasteless? Get busy now and put in an irrigation system for your garden. (See the article on page 297.)

Mulch the Gooseberries

LET every little gooseberry have a mulching of its own. Next to irrigation, or still more effectively as a supplement to irrigation, provide a summer mulch before the end of this month for those flowers and vegetables which require a particularly large amount of soil moisture to do well. Winter mulching saved when it was removed this spring, fine dry manure, grass clippings, leafmold, or peat—any of these will serve the purpose and conserve moisture. Cultivate thoroughly and then spread the mulching thickly enough to shade the ground thoroughly and over a large enough area to cover most of the root system of the plant. Some of the flowers and vegetables which most appreciate mulching are Roses, Sweet Peas, and other flowers in open beds where the soil is not covered by the foliage; gooseberries, currants, eggplant, cauliflower, and summer peas.

Impressions of the Big Spring Shows

THE National Show at Philadelphia, March 25th to April 2d, and the International at New York, April 5th to 12th, were two memorable gatherings, visited by hundreds of thousands and successful in every way. Artistically the New York Show was a revelation, not only to the public but to its promoters, and stands transcendantly above all other efforts ever made. The large Rose gardens, covering 500 square feet, were triumphs of skill in design and dominated the exhibition. Not behind in interest, however, were the equally attractive rock gardens which, for the first time in America, became really leading features in an exhibition, which would seem to indicate that the rock garden cult has taken hold among us.

New York has had four years of evolution in raising its Show to its present high standing. The quantity was more noticeable at Philadelphia, where the Society of American Florists may justly be proud of the stimulus it has infused into local horticultural matters. It is to be hoped that what the national organization accomplished four years ago for New York, this year's effort will have done the same thing for Philadelphia. That is, infusing local interest and stirring local pride sufficiently to create an annual event.

The appealing popularity is proven. People came from every state in the Union to visit both these phenomenal exhibits. The expert horticulturist, who has been acquainted with flower shows in the past, was impressed very forcibly with the fact that these events had greatly raised the former standard of cultural skill.

The accompanying pictures, except in the two cases noted, were made at the New York Show.

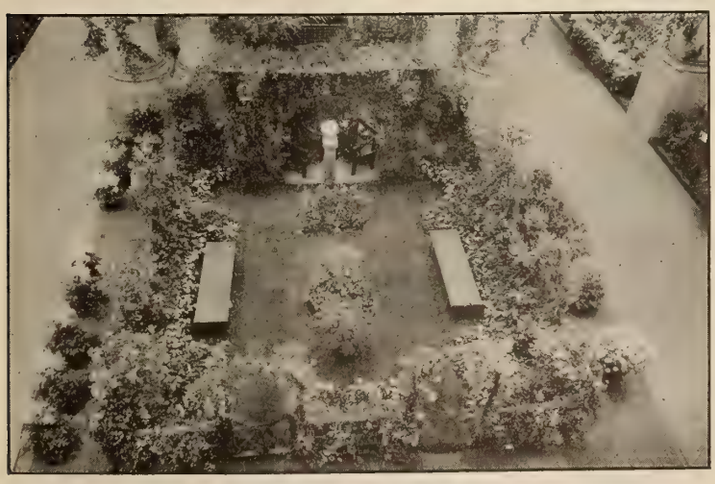
Cattleya Princess Patricia (speciosissima Empress x Trianae alba) absolutely pure white. Offered for the Red Cross benefit by Mr. Clement Moore

Hybrid Amaryllis as exhibited by Mr. Howard Gould. These plants were shown by several growers and are evidently becoming popular

The most remarkable single exhibit at the National Show, Philadelphia, was the group of Australian Acacias from Thomas Roland. These were purchased for the greenhouses of Mr. Widener.

Vista through arches of Rambler Roses over moss covered steps in the group of Mrs. F. W. Thompson

Central feature of interest in Bobbink & Atkins' Rose garden — wall fountain and gazing globe

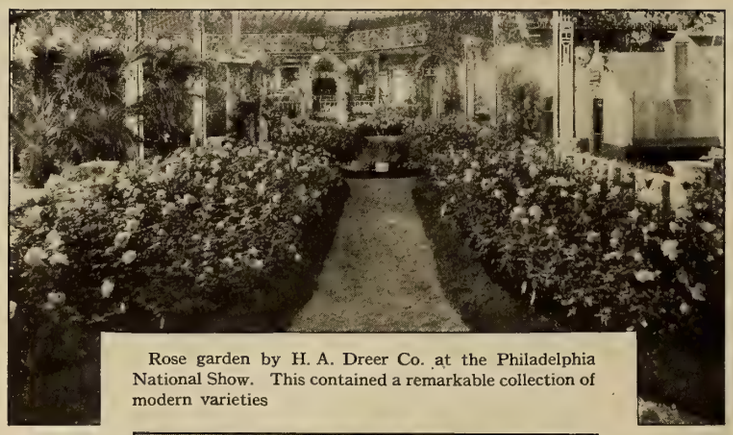


Model Rose garden of A. N. Pierson Co., effectively arranged with climbing Roses on cedar fence and summer house

Model Rose garden of F. R. Pierson Co., which was notable for its beautifully proportioned design. The color effect was uniform pink

Rock garden exhibited by A. N. Pierson Co., exhibiting use of dwarf shrubs in conjunction with herbaceous plants. (New York)

Another rock garden (Bobbink & Atkins) in which a great diversity of flowering plants was exhibited. (New York)



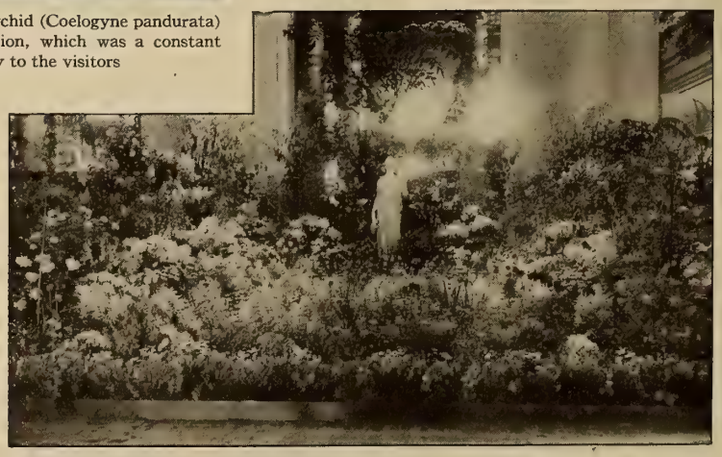
Rose garden by H. A. Dreer Co. at the Philadelphia National Show. This contained a remarkable collection of modern varieties

Portion of a group of spring flowers, chiefly bulbs, staged in New York by Mrs. A. M. Booth, symbolical of spring

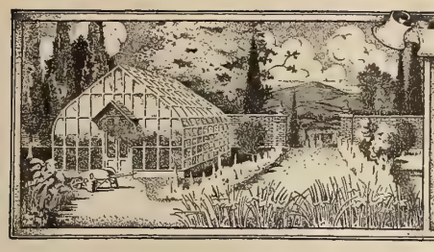
The rock garden feature shown here formed part of Julius Roehrs Co. display, introducing falling water and ferns

The green fiddle-flowered Orchid (Coelogyne pandurata) in Lager & Hurrell's collection, which was a constant source of interest and curiosity to the visitors

Dutch bulb garden (John Scheepers Co.) in which the interested visitor found many novelties and rarities



Prize-winning group in the amateur class staged by Mr. Adolph Lewisohn. Particularly appealing on account of its wealth of bloom and light, graceful arrangement



ODDS AND ENDS
FROM EVERYWHERE

Asters to Follow Corn

THE problem for most of us who garden in a limited space—and we all seem to do so, no matter what is the size of the space—is to find a place for everything that we want to grow. In this connection it should be remembered that some coöperation between the vegetable garden and the flower transplants is advantageous. Therefore, if you have more late seeded Asters—designed to bloom in September after the black beetles are gone—than you have immediate places for, you can, by a little ingenuity, arrange to have them follow second early sweet corn. This may be done by advancing the seedlings to standard 5-inch clay pots, or better still—for convenience in handling—to paper pots folded on a 4-inch cube and packed snugly into flats holding half a dozen or a dozen each. The paper pots, thus arranged and placed where they will be shaded in the afternoon, serve the purpose better, as they dry out less rapidly than the clay pots unless the latter are plunged into the earth—and it is often as difficult to find a place to plunge pots as it is a place to transplant seedlings.

In early August, when further vegetable planting is restricted because of the lateness of the season, the place where a planting of corn has been removed may be utilized for the Asters. By that time they will be good sized plants, but the pots will care for them fairly well, and they can be transplanted without the least disturbance of the roots. Ordinarily, about the only effect of such transplanting is a stimulated growth, especially if at the time of transplanting they are watered with a solution of about one teaspoonful of nitrate of soda to a gallon of water. Thus in September and early October you will have fine bloom in what would otherwise probably be a bare spot in the vegetable garden.

Indiana. HORTULUS.

Garden Value of Tree Toads

THE garden being plagued by many insect pests, we determined last year to find out of how much use were tree toads. So we watched. Six of them took the veranda step as a sunning place and greedily swallowed green caterpillars, aphis, skip bugs and flies. Slugs they struck at and retired swiftly, rubbing their mouths with their front feet. Three of them did this, so we believe the birds to be the only enemies of the slugs. Hairy caterpillars the toads would not tackle at all, nor long-legged spiders. One family sunned itself on a Countess of Lonsdale Dahlia and sometimes a large grasshopper would perch on the back of a toad. Perhaps some other of THE GARDEN MAGAZINE readers have interesting things to relate of their experiences with tree toads.

Vancouver, B. C. ALICE C. F. PLUMMER.

Preventing Cabbage Heads from Bursting

FOR a number of years I have each year grown an acre or two each of early and late cabbage, and have always suffered some loss by heads bursting before they are cut. Two or three years ago I read an article on cabbage growing wherein it was stated that the bursting of cabbage heads could be stopped, or prevented, by severing the tap root at a few inches below the ground line, using a narrow spade, or a large knife, or a hatchet. Another way, less quickly done but yet practical and effective, the article said, was to twist the headed plant around a few times so that its feeding roots were loosened in the soil.

With an acre or so of cabbages heading up it is impossible to market all heads just as soon as hard, so last year I tried each of these preventive measures on a few rows of particularly fine heads. These were of early varieties—Winningstadt and Copenhagen Market. The result was that in a couple of days these heads were spongy and unmarketable—withered much worse than even a soft head cut and stored in an ordinary cellar would be. Sure enough the treatment stopped the heads from bursting—and its other effects stopped me from resorting to preventive measures on any more. The withered heads are more completely unusable than split heads.

The fact is, neither of these preventive measures are practical for use on early crop cabbage, at least, for you cannot sever the tap root or loosen the feeder roots and then leave the plant in the field exposed to the sun without causing it to so wilt that it is worthless after a couple of days. The only practical way of saving bursting heads is to cut at once and store in a cool cellar. Another recourse, but hardly to be recommended, is to select a strain not given to heading so hard as to burst.

New York. L. BROWN.

The Worth of Old Box

THESE two beautiful groups of Box have developed naturally during one hundred years of indifference and neglect. Branching as the Box does near the ground, these groups seem to the casual observer to come from one root and, indeed, only on close examination is

These two masses of Boxwood, more than one hundred years old, were recently sold for $200 each, for removal to a Hudson Valley garden

it shown to be otherwise and that they probably at one time edged small beds—the one a circle, the other of an oval form—which they have long ago overshadowed and obliterated.

These clumps of Boxwood, one 19 x 18 ft., with a circumference of 52 feet, 8 feet high, the other 38 x 28 ft., 12 feet high, circumference 102 feet, have recently been purchased ($200 was paid for each group) and will soon be removed to new quarters in the Hudson Valley. It is quite possible to transplant Boxwood even when of this size and age.

West Grove, Pa. ELLA K. BARNARD.

As soon as I can can after cutting Poppies, I plunge the stems for a second into water that has been hard boiling within five minutes, and then put them in cold water. My blossoms last not less than twenty-four hours.—THOMAS D. JENKINS, Conn.

The Ubiquitous Helianthus

NOW that the seed houses are featuring the Helianthus or Miniature Sunflower in every catalogue I should like to tell of my experience with it. For some years I have been in the habit of each summer choosing haphazard some unfamiliar annual to experiment with, a custom I can recommend as being both amusing and highly instructive. Some four years ago it happened to be the Miniature Sunflower.

I bought seeds of the thirteen varieties listed and, as they varied in height from twelve inches to seven feet, I thought they would do nicely for my border. The seeds came and were planted, covering a space of about four feet by fifty.

A great many of the seeds failed to germinate, a fact in itself disappointing; and when the flowers came I was still more disappointed that I had so few when they were so pretty. They varied in color from the palest cream to golden brown. In shape they ran from the single blossom to the fullest pompon flowered. One variety, Orion, had all the qualities of a Cactus Dahlia in miniature. The plants grew quickly and made a splendid screen; the flowers were ideal for cutting. So much for the good points.

That fall I cleared out the dead Helianthus stalks and filled the bed with bulbs. These were a complete failure, a failure I could not understand. The bulbs came from a reliable firm, the soil so far as I knew was good. The weather was mild and sunny. Yet the Tulips and Daffodils sent up weak little shoots which withered and died and came to nothing. I decided to investigate. The truth came out with the first shovelful of earth and Sunflower roots. From six inches under the surface to a depth of two feet, a solid mass of tubers from six to to eight inches long were interwoven, matted together until it was almost impossible to do anything with them. It meant going over that fifty feet of border inch by inch, tuber by tuber, almost, carting them away and burning them. I said tuber, but they were not really tubers nor yet rhizomes. They were more like running grass roots on a large scale, with leaf buds or eyes at intervals all the way along. They were anywhere up to ten inches long and about half an inch in diameter. One end would have a small tassel of fibre-like rootlets; the other armed with a hard sharp point strong enough to push through half rotten boards and from which the main stalk eventually grows. This is not the worst. The plant will grow readily from root cuttings; a piece no bigger than your thumb nail becomes a flourishing plant in a fortnight. Roots thrown on sunbaked clay and exposed to the full heat of the sun will send out roots and grow. The only roots that failed to grow were some thrown in the chicken run. I was surprised when they died; they are almost impossible to eradicate. Even an inch by inch search must miss some bits.

It is my belief that the Miniature Sunflower is, if not an artichoke, a near relative, with the same manners and habits. The only difference is that the roots of the latter are true tubers. The plants and leaves are the same.

That summer I raised quite successfully the things I planted and was not troubled by Sunflowers beyond those which grew from small cuttings. I pulled these up and it was not until later that I discovered that pulling up the leaf stalks merely snaps them off where they join the roots, leaving the latter quite undamaged. They seemed so well done for I decided not to disturb my bulbs for another summer and, further than pulling up the shoots as fast as they appeared, I did nothing. Last spring marked the second battle, with the advantage on my side that the roots were mostly near the surface. Eight apple boxes of them were burned at this time. In some places by the fence I found roots at a depth of two and a

half feet and still going down in order to get under the fence into my neighbor's yard. I may say here that, although warned he has taken no steps, and a host of golden Sunflowers are at present merrily headed toward his house. They do not seem to come back.

In spite of all this, I believe that with proper precautions the Sunflower may be grown to advantage for it is really beautiful. A cement wall sunk to a depth of three feet and surrounding it would keep it in bounds, I think.

One package of my seed was perennial and lacking the courage to plant any more I cannot decide whether it was only these that spread, which seems hardly possible, or whether the so-called annual varieties develop these roots also. I should like to hear from others on this subject. So, while I admire the new red Helianthus very much indeed, when I come to its picture in the current catalogue I look at it longingly, but I pass it by.

Chilliwack, B. C. Eloise W. Street.

[The difference between annual and perennial species is very clear. No "annual" lives over the winter. The Red Sunflower is an annual. —Ed.]

Our Garden in the Making

THIS is just the beginning of what in time is going to be our "informal formal garden." We did every bit of the actual work on it ourselves except running the water into the fountain. My husband built the fountain, the two seats and the sundial in the cellar during the winter. The forms were made of boards, then concrete poured in, and when it was hardened, the forms were taken off. He put up the rustic fence, and I planted a Crimson Rambler at each post and the hardy border in front. It

will take it a year or two to get started, but when the Iris, Larkspur, Foxgloves, Oriental Poppies, and all the rest begin blooming, think how lovely it will be! The border will be in flower from the time the first Jonquil appears until the frost takes the last Marigold. We are going to cover the sundial with Ivy and plant a clump of Hollyhocks near it to give a bit of color there.

We feel that we are going to get a great deal more pleasure out of our garden than if we had cut our strip of ground up into the conventional beds. It, of course, looks rather bare yet, but in a few years it is going to be a very beautiful spot if our plans only work out as well in the future as they have thus far.

Pennsylvania. Jane Gates.

Black Beetles on Asters

ON PAGE 72 of the March Garden Magazine, in an article entitled "The Science of Growing Asters," I note with surprise the following paragraph, and cannot understand how it came to "pass the censor." After telling how she plants her Aster seeds and successfully cares for the seedlings, the author states as follows:

"This extra fussing pays in sturdier plants . . . and renders the plants *practically immune from the black beetle.* In the years that I have grown Asters (only three) they have never been afflicted with this pest, and I understand the method of pot grown plants is largely the reason."

Pray how could any amount of "fussing" in *planting* keep away the black beetle from their feast of Aster flowers? The author might as well state that proper planting would keep away the nasty rose chafer from the Roses, or proper feeding keep the mosquitoes from our babies!

It is possible that there may have been no black beetles in the author's garden, or they may have preferred some other blooms to ravage, as they often do in my own garden, spoiling the Calendulas or hardy Asters or Dianthus, and letting the China Asters strictly alone.

I do not decry the "fussing"—far from it! I am well aware that Asters need extra care, particularly when transplanting, and often applications of various kinds about the roots, as their worst enemies lie underground. I have used with great success a lime and tobacco water mixture which was recommended last spring in The Garden Magazine.

New York City. Mrs. L. G. Reed.

Classifying the Dahlia

SYSTEMATIC botanists now prefer another scientific name for the flower, but it preeminently deserves the one so commonly given in floricultural literature, *Dahlia variabilis*, the "changeable Dahlia." Probably no other genus of plants has developed in so short a time so many diverse types as mark the present day range of this beautiful fall flower. In the genus we have plants dwarf and plants giant, plants light yellowish green and plants deep metallic bronze, stems stocky and stems slender and leaves coarse as those of cabbage and fine as those of ferns. The widest range, though, is shown in the flowers; for here, starting with the "single" with eight small "petals" or floral rays, we have every gradation in size from the tiny Pompon to the gigantic decorative, and every development in form, extending, on one hand, through the broad-petaled, flat Decorative to the perfect ball of tightly-quilted rays that mark the old "Show" type, and, on the other hand, through the long, gracefully twisted ribbons of the Peony-flowered Dahlia, to the delicacy of the needle-like, interlacing, reversely rolled rays of the most advanced Cactus Dahlia.

Developing in different countries along somewhat unlike lines, the classification of these types of Dahlia has become very irregular, so that except in England, where a National Dahlia Society and the Royal Horticultural Society have done much to secure uniformity, every grower has had a classification scheme of his own, differing slightly or materially from that of his neighbor.

This unfortunate confusion the American Dahlia Society is attempting to correct, for this side of the water, at least; and has presented a tentative classification scheme, which, in its final form, it is hoped Dahlia cataloguers generally will adopt and use, so that we may have a definite idea in mind when we speak of a particular type of Dahlia.

This classification groups Dahlias in nine sections, largely by type of blossom, as follows: (1) *Cactus Dahlias*, with subsections for the true, fluted type and the Hybrid-cactus or Semi-cactus type; (2) *Decorative Dahlias;* (3) *Ball-shaped*, Double Dahlias, with subsections for Show type, Hybrid Show, Giant Show or Colossal type, and Pompon type; (4) *Peony-flowered*, or "Art" Dahlias; (5) *Duplex Dahlias;* (6) *Single Dahlias*, both large and small; (7) *Collarette Dahlias;* (8) *Anemone-flowered Dahlias;* and (9) Other sections, defining Miniature or Pompon Cactus, Mignon or Tom Thumb type, Bedding Dahlias, and Cockade, or Zonal, Dahlias.

If classification has been confused, the nomenclature of its varieties is "confusion worse confounded." Names are now not only duplicated, but double duplicated and even worse, frequently for varieties of same type. The same variety may travel under one or more aliases; names are so misspelled as hardly to be recognizable; foreign names are imported bodily with the varieties, or are translated or mistranslated; old varieties are renamed, etc., etc., while accurate descriptions of varieties, based on any known color standard, free from unduly laudatory adjectives and giving a clear picture of the flower, are altogether too rare.

The correction of the errors in names and the writing of exact, non-technical but clear and concise descriptions of the limited number of varieties that are carefully selected as really worthy of continuation, are tasks that can only be accomplished, if at all, by years of careful work.

All varieties thought by any grower to be really worthy of attention should be collected at some central place or places, where they can be carefully studied and compared by a small group of Dahlia lovers, or by scientific students of floriculture, who are interested in the flower as such, not concerned with its dissemination or sale but thoroughly cognizant of all points which make Dahlias worthy of growing or selling, either for decorative beauty or commercial adaptability. Such work the American Dahlia Society, through its Nomenclature Committee, hopes sometime to be able to do; but it can become a possibility only by the hearty coöperation of all Dahlia growers and Dahlia lovers.

Geneva, N. Y. F. H. Hall.

Protection from Sun or Frost

A CONVENIENT and effective device for protecting plant from either sun or frost is made of muslin—or cheesecloth, if preferred —and galvanized wire such as is used for telegraph lines. Not only is it convenient and effective, but it can be made by any gardener, and there is no expense except for the material, which is cheap. Yard-wide muslin is probably the best to use for all purposes. The wires should be cut in 54-inch lengths, and bent into the form of a round-topped croquet wicket. Sew a hem an inch wide across the end of the muslin. Then fold the strip back on itself three feet, and run a line of stitching across it an inch from the folded end. Repeat this every three feet until you have made the protector as long as you want it—preferably in such sizes that one or more of them will just cover your rows. Into each of these hems slip one of the bent wires.

As the muslin is thirty-six inches wide and the wires are fifty-four inches long, nine inches of wire are thus left for sticking into the ground, on each side of the plant row, to hold the protector in place. When protecting from frost, or even cold, it is well to push the wires down so that the muslin touches the ground on each side, as this will shut out the wind and keep the plants very snug; but for protection from the sun it is better to plunge the wires only sufficiently deep to hold the protector in place, and leave as much space as possible between the protector and the ground for ventilation; or the muslin may be slipped down on the wire until it touches the ground on the sunny side of the row and a wide space left open on the shady side. This latter plan has been found especially effective in protecting transplanted late celery from the fierce rays of the midsummer sun.

Other advantages of this device as its light weight and the small space it occupies when not in use, as, of course, it collapses like the bellows of a camera, and enough of it to cover a hundred feet of row can be carried over the arm. When more than one section is used they should be slightly lapped at the junctions.

Indiana. W. L. Wilson.

A cheesecloth protection for plants, showing the wicket-like supports at three-foot intervals

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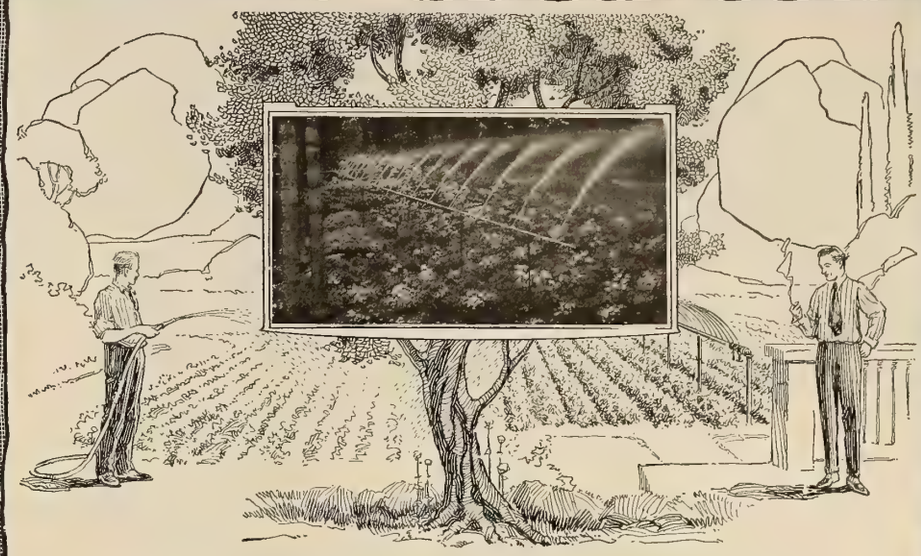

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$13.75 buys a completely equipped Portable Line 50 feet long that will water 2500 square feet; or a space 25 feet on each side. 100 foot line $26.25. Lines can be furnished in any length, made to fit your garden.

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Use "Corona Dry" *first*—before the bugs start to eat your growing things. Get it where you buy your seeds. If your garden is small dust on "Corona Dry" through a cheese-cloth bag or small bellows. For larger plots we advise using the Corona Hand Duster.

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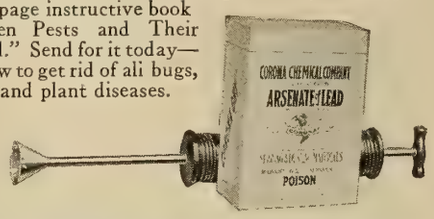

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THE largest and finest collection in America, embracing the best Hardy and Tender varieties of Nymphaeas, including Day and Night-blooming kinds, also Victoria Regia, the Royal Water Lily in several sizes. Nelumbiums, in strong pot plants (or dormant until June 15th).

These are fully described in **Dreer's Garden Book for 1916,** together with cultural instructions on the growing of Water Lilies. The best Catalogue published, containing 288 pages, five color and five duotone plates, hundreds of photographic reproductions and offers the best of everything in Seeds, Plants, Bulbs, etc.

We offer free to our patrons, the advice of our experts in devising plants for ponds and selecting varieties.

Mailed free if you mention this publication.

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In the South—Watch Out For Bugs

BE VIGILANT in fighting diseases and insects on vegetables, flowers and trees. Bordeaux mixture is a good preventive for most diseases and, with an addition of arsenate of lead, will eradicate the insects. Bordeaux mixture is made by dissolving four pounds of lime in water and four pounds of copper sulphate separately, then stirring them together with enough water to make fifty gallons; ten more gallons of water is added for summer strength and for this amount one and a half pounds of arsenate of lead is effectual in spraying for beetles and worms. Begin spraying vegetables just as they appear above ground and keep it up every ten days throughout the growing season. This is especially necessary with potatoes and cabbages and saves a world of trouble, as the terrapin bug and worms increase rapidly and are difficult to combat. After the cabbages attain a larger growth, a dusting with slug shot early in the morning when the dew is on the plant so that it will stick is most efficacious. Slug shot is not poisonous.

In sowing melon seed sow with them in the same hill a little radish seed, as beetles prefer these to the melons. If this was forgotten in May, spray with bordeaux and arsenate of lead constantly. Dust powdered hellebore on the currant bushes for the currant worm.

The black rot on grapes can only be eradicated by spraying with bordeaux until the middle of July every ten days. Red ants and black and green aphis are troublesome in the flower garden. A dusting with fine tobacco is effectual or they can be sprayed with a liquid made with steeping tobacco-stems or leaves in hot water and diluted with cold water. Peonies and Chrysanthemums are usually annoyed by these pests. A ring of lime or coal ashes about the base of the plants is very helpful. Roses have the rose chafer to contend with and Clematis and Asters the black beetle. Before the flowers come, a fortnightly spraying with bordeaux and arsenate of lead will kill the larvae of these beetles; but if this has been neglected later on slug shot is most helpful, though it is not prepossessing when scattered over the plants.

In planting out the Asters, plant some pepper plants among them; this is a catch trap for the beetles, and they can be picked off and destroyed. Picking off the rose chafers when they first appear and dropping them in a pail of kerosene is another way, but rather a troublesome one. Always, of course, prevention is better than cure, and early in the season spraying with bordeaux prevents much trouble later on. This is also a cure for curly leaf on Hollyhocks and is most necessary in the orchards early in the season.

Look out for the peach borer at the base of the trees this month and again later in the fall; cut them out with a sharp knife or strong wire. If plants are kept in healthy condition by being properly nourished and cultivated they are less subject to insects and diseases.

Use constantly nitrate of soda, scattered between the rows of cabbage plants and beans; work around the rhubarb some well rotted manure and cultivate the corn constantly, mixing in the soil a little bone meal. Stirring the soil constantly will conserve the moisture which is so essential during the dry season.

Cease cutting asparagus early in June; scatter coarse salt over the bed now as it keeps down weeds and is otherwise beneficial to asparagus. Winter potatoes are planted the last of this month. Successional planting of corn, beets, string beans and kohlrabi can be made until September. Carrots and salsify for winter use are sown now. Set out sweet potato plants, celery plants, curly endive, witloof chicory, eggplants and pepper plants, late tomato plants from the coldframes. Sow Lucullus chard and the Davis Perfect cucumbers for pickles.

All weak stems of Dahlias should be cut out and one strong one left. Use no fertilizers until the buds appear and then water constantly with manure water every ten days; this makes much finer flowers.

Summer pruning of vineyard and orchard is most essential. Don't allow too much fruit on any one limb; pull off a few here and there when they are small and green so that those that are left will be more perfect.

Virginia. J. M. PATTERSON.

Tag Day in Your Garden

500 Garden Labels

With the increasing multiplicity of names of plants and flowers in the garden caused by the introduction of new varieties, etc., it is becoming more and more necessary for garden enthusiasts to label plants. These boxes of labels have been prepared to meet the demand for labels that would serve this purpose, and yet in no way mar the beauty of the garden at any time.

This is positively the most unique and useful gift for the amateur gardener. The assortment is complete from the Big 12-inch Label for marking seed or bulb rows, to the Little 3½ inch copper-wired painted Label for marking trees and shrubs. With this assortment of Labels

You Can't Forget

just when and where you planted certain Seeds or Bulbs and you **can at once identify** any Tree or Shrub and all transplanting can be done accurately even while the plants are in a dormant state.

The 500 Labels are attractively packed in a pretty and lasting cedar box and the entire assortment with two marking pencils will be mailed to any address for **$2.25**

Let us send one of these boxes on approval and if not entirely satisfactory it may be returned and money will be at once refunded.

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DO it before it ruins your crop prospects. Timely spraying will kill off the destructive insects—banish the blights. Spraying pays! Save money on your spraying outfit, too. We can save you one-quarter to one-half on any kind of sprayer, hand or power. Look at this one, for instance—

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Can Be Used With Any Barrel $6.45

If you bought it in the ordinary way it would cost you between $10.00 and $12.00

For various kinds of spraying—orchards, vineyards, shrubbery or for white washing dairies, poultry houses, etc. Double acting—brass nozzles—brass cylinder—brass valves—brass valve seat—paddle agitator. Furnished with 5-foot hose. Built to last for years—guaranteed to give satisfaction.

Send for Valuable FREE Book

—our Special Farm Book, every page filled with hundreds of BARGAINS in all kinds of Spraying Outfits and Supplies—as well as farm tools and materials. New—just off the press. Send for a FREE copy today.

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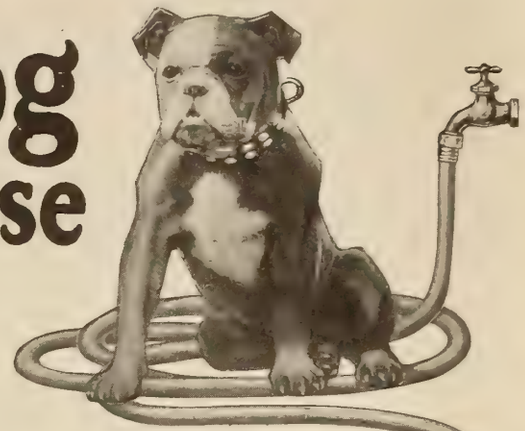
Bull Dog Garden Hose Lasts Longest



DID you ever use a garden hose 15 years? Here is a man who did—Read his letter—

Boston, Mass., August 12, 1915.

Gentlemen:—

"Some 15 years ago when I started housekeeping I bought a 50-ft. length of 'Bull Dog' hose. Last year I discarded it and bought another hose which was recommended to me by a salesman in a local store and which I have now had about a year. This new hose has given out in several places so that it is practically worthless and I need a new one.

"I should like very much to get another length of 'Bull Dog.' Can you fix me up by sending me a 50-ft. length?"

(Name on Request)

Garden hose seldom wears out—it usually dies and falls to pieces. "Bull Dog" hose lasts longest because there is plenty of live rubber in it.

"Bull Dog" 7-Ply Garden Hose

Made ⅝ in. with ¾ in. connections—18c a foot—in 25 and 50 ft. lengths

If a popular price hose is desired, our Good Luck brand at 10c a ft. is your best selection. It is the popular priced expression of the "Bull Dog" standard. There is no better hose at the price.

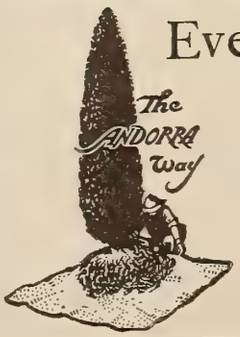
Your hose will serve you best when equipped with a "Boston" Spray Nozzle. It is easy to use, cannot get out of order and gives you a shower, spray or mist. 50c at your dealer's.

Our practical booklet "How to Make Your Garden Grow" is full of helpful suggestions. Send 4c to Dept. G.

Boston Woven Hose & Rubber Company
The World's Largest Manufacturers of Garden Hose
Cambridge, Mass.

B2 *Order from us direct if your dealer does not sell our hose.*

Evergreen Planting in Mid-Summer



FROM the latter part of July until late September is a most favorable period for the successful planting of Evergreen Trees and Shrubs. Our Evergreens are lifted with a large ball of fine roots and earth which is securely wrapped in burlap to insure their safe shipment. Catalog if requested.

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Japan Bamboo Stakes

Invaluable for staking Herbaceous Plants, Gladioli, Lilies. Strong and DURABLE, do not decay like wooden stakes or Southern cane.

NATURAL COLOR

	25	50	100	1000
6 feet long	$ .40	$ .75	$1.25	$10.00
8 feet long	.75	1.25	2.25	17.50

GREEN COLORED INVISIBLE BAMBOO

	25	50	100	1000
2 feet long	$ .25	$ .40	$ .65	$ 5.00
3 feet long	.35	.60	1.15	7.50
4 feet long	.45	.75	1.25	10.00
5 feet long	.50	.85	1.50	12.00

VERY HEAVY BAMBOO

Suitable for Dahlias, Tomato Bushes, or wherever STRONG support is needed. (NATURAL COLOR).

	12	50	100
6 feet long, ¾ to 1 inch diameter	$1.50	$6.00	$10.00
8 feet long, ¾ to 1¼ inch diameter	2.00	8.00	15.00

Bamboo is much used for Japanese Gardens, Bridges, Kiosks, etc.

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Upon application our Special Price List will be mailed to you now, followed later by our Autumn Catalog.

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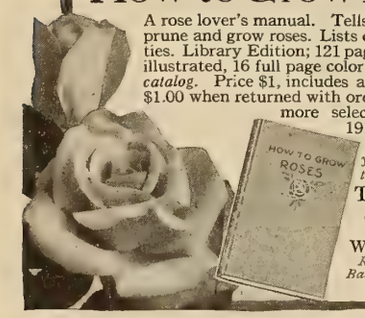
MILTON MASSACHUSETTS

"How to Grow Roses"



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Plan NOW to plant native ferns, plants and bulbs. Early fall planting brings best results for early spring flowers.
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Save the Trees Kill San Jose Scale, Aphis, white Fly, etc., by spraying your trees with

GOOD'S CAUSTIC POTASH FISH OIL SOAP No 3

Sure death to tree pests. Contains nothing injurious to trees—fertilizes the soil. Used and endorsed by U. S. Dept. of Agriculture.

FREE Our valuable book on Tree and Plant Diseases. Write today.

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Gardening for Young Folks

Conducted by Ellen Eddy Shaw

$4000 in One Season

LAST year the Government lent its aid in making Lincoln, Nebraska, a demonstration city and sent a representative to assist and direct the work. Children were asked to secure such ground as they could find and those who could find none were assisted by a Committee who secured lots and rented to the children at a fair rate to inculcate the spirit of independence. Each child registered in one of two classes. In what we designated as Class I were the flower gardens and vacant lot gardens, and in Class II were the vegetable gardens. Each member of this class kept an account of all expenses and all vegetables used or sold, and in the fall presented, for English credit, his account and a composition with pictures or illustrations. These were also taken into consideration in awarding the prizes. A leader from among the patrons of each school was chosen for each group of twenty children to meet with them as a club for a study of difficulties and to visit the gardens and offer suggestions or help. Two hundred interested patrons from all parts of the city acted as judges during the summer, visited the gardens a number of times and awarded $400 in cash prizes. This money was donated by the Commercial Club and the Woman's Club. There were last year about 1,000 home gardens thus cared for and the sum total earned by the children from their gardens was reported as amounting to $4,000.

In addition to the home garden work, each school secured such lots as were available and made a choice of what should be raised, reserving a space to be used by the Government representative as a demonstration plot for tomatoes. Most of the schools raised vegetables and these were marketed under the direction of a Garden Supervisor. During the summer a public city market was conducted by the children where the vegetables, flowers, and poultry from the home and school gardens were sold and the children trained in business methods. All vegetables not sold were taken to a school kitchen, and a canning demonstration was conducted by an instructor from the University State Farm.

At the McKinley School Garden, in almost the centre of the city, the lot secured was unsightly; but the children, with great enthusiasm, cleared away the rubbish and brought from home, or any source available, boxes and paper sacks of good soil to fill up the low, poor parts which were covered with ashes. A small part was set aside for the demonstration plot and the rest was planted in flowers to make a beauty spot in the centre of the city. The space was divided into small beds and an equal number given to each grade in school. In this way each child had a personal share in one bed, as well as a sense of responsibility for the whole.

It has been our aim primarily to train the children in civic pride and industry and make the cleaning up and improvement of all lots and vacant spaces a part of the gardening idea. After these five years of effort many citizens declare that it is now possible to raise flowers without danger of molestation, and to preserve lawns heretofore carelessly run across, and that this is due to a growing civic pride and to the realization upon the part of the children of what a garden means.

ANNA BETHUNE, McKinley School.

A Garden Blackboard

ONE summer we had turned over for use as a children's garden what in a previous decade had been a fine old city mansion with a small formal garden and, beyond it, a long grassy stretch. The latter we turned under for the children's plots. We unearthed again the paths and boundaries of the formal garden, filling it once more with color. Just to the north of it and at the rear of the big house, whose half demolished conservatory we used for a tool room, were large trees for our mid-morning talk, for our table for observation work, supplies, and divers uses.

We tidied everything up but about 400 square feet of wall space of the lower story of the rear of the house, where broken conservatory glass and rotting clapboards made a disgraceful condition that spoilt the whole effect of our garden. The cost of repairing it was not to be thought of!

We pondered the location of windows, of the worst blotches, and our need of a large and unobtainable blackboard. For the latter we bought shelf oilcloth, fifty-six inches wide, several small paint brushes and two cans of dark green house paint. We asked for a contribution of old rags and several ounces of turpentine or kerosene oil (for future erasures) if need be. We covered three small wall spaces, 3 ft. by 4 ft. 8 in. (the width of the cloth) and one greater of 12 ft. by 4 ft. 8 in. Thus we had an astonishingly neat looking wall space, a blackboard which the children delighted to embellish, and where "Facts to Remember" withstood any weather. We had also a panel for the numbers and names of the plot owners and two panels for "Lists of Weeds" and "Flower Friends and Foes," which were inscribed as we met them.

As the children came but twice a week, we did not start the blackboard or chart until we had acquired considerable information to which we could join the day's advance lesson and the children deduce the facts they were to paint upon the chart. The chart was from the children, by the children, for the children, to jog their memories, and to etch upon their minds in systematic order the main facts of their summer in the garden.

M. LOUISE GREENE, New Haven, Conn.

A Local Rural Problem

MY SCHOOL is situated one mile and a half from Parkhill in the province of Ontario. The soil in the school ground is rather a light loam. This year I am treating oats for smut, showing the pupils how it is done and then sowing another plot not treated this way. The reason I am dealing with smut is this: that it is of vital interest in this community. Last year a great deal of harm was done by the smut in oats, and this year I am trying to get the parents, through the scholars, interested in the treatment for smut. I also have a large number of useful bulletins, which I send out to the homes for the parents to read and study.

CARL RITCHIE.

Nova Scotia Garden Work

FOR years, school garden work was attempted in Nova Scotia in widely separated districts. Each school worked by itself. The teacher was visited and assisted occasionally by a government official; but she knew comparatively little of what a fellow teacher was doing in some other district.

Under newer organization, however, the movement is now quite general. Out of 2,500 teachers in the province, 150 have taken a special course in gardening, and are carrying the propaganda to new districts.

We are trying the experiment, in general, of home gardens first. After the children have acquired an interest there, they are ready to care for the school garden during the summer vacation. The school garden has always started well in the spring; but by mid-summer it was a neglected patch of weeds. The children had not become interested.

They became interested in the home garden largely through the school exhibition. In 1914 we had 700 home gardens under school supervision. In 1915 we had 2,000 home gardens under school supervision. In 1916 we shall have 3,000 home gardens under school supervision.

L. A. DE WOLFE, Truro, Nova Scotia.

Write to the Readers' Service for suggestions about garden furniture

Plan Now For Your Fall Planting

JUST about this time of the year the full realization comes of how many things might have been planted and *should* have been planted, yet were *not* planted. In the hustle and bustle that seems to come upon all of us along about spring planting time, you may have just plain let go those Shrubs you planned for; or that group of Evergreens, or those oldtimey Hardy Flowers that you are wishing for right now.

But don't be unhappy about it, because there's a right-now-time happy solution. Start *now* to do your planning for next year, at a time when all your wants and needs are so firmly fixed in mind. And then plant your Shrubs, Hardy Flowers and Evergreens this Fall. You have two or more months to make sure that next Spring will be a season of no regrets.

You can set out all our sturdy full-rooted stock without misgivings. It is absolutely dependable and uniform in quality throughout. All roots are compact and fibrous. They are especially grown for success in transplanting.

With our catalog before you, it will be an easy matter to select just what you want. Send for it.

Framingham Nurseries
W. B. WHITTIER & CO. - FRAMINGHAM, MASS.

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Stockholders holding 1 per cent. or more of total amount of stock on April 1, 1916: F. N. Doubleday, Garden City, N. Y.; W. H. Page, London, England; H. S. Houston, Garden City, N. Y.; S. A. Everitt, Garden City, N. Y.; A. W. Page, Garden City, N. Y.; Russell Doubleday, Garden City, N. Y.; W. F. Etherington, New York City; R. M. Fair, Chicago, Ill.; W. W. Fuller, Briarcliff Manor, N. Y.; O. L. Johnson, Norwich, Conn.; F. Coit Johnson, New York City; H. W. Lanier, Eliot, Me.

Known bondholders, mortgagees, and other security holders holding 1 per cent. or more of total amount of bonds, mortgages or other securities: None.

(*Signed*) DOUBLEDAY, PAGE & COMPANY
By S. A. Everitt, *Treasurer*
Sworn to and subscribed before me this 1st day of April, 1916
(Signed) Albert H. Jennings, Notary Public
Nassau County, N. Y.
Commission expires March 30, 1918.

For Your Lawns, Shrubs and Flowers Now Is the Time to Use Alphano

ONE of the strongest points in favor of Alphano, as an ever-ready soil builder and rich plant food, is that you can use it *any time, anywhere*. There is no one best time to use Alphano.

For your lawn you can spread it on today or any day, and at once rake it in out of sight. Being finely granulated you can easily do this. Being odorless it's never in the least objectionable.

It is used extensively for top dressing of golf greens, which is proof beyond dispute, of its unqualified merits.

Dig it around every one of your shrubs, especially the rhododendrons and laurel.

Sow it along both sides of your vegetables and cultivate it in.

Dig it around your flowers.

Have some extra bags always on hand to use at intervals all Summer.

Results will amply repay you.

Send for the Alphano Book, and post yourself on short cuts to garden and lawn results.

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$12 a ton in bags
$10 a ton in bags by the carload
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We offer many varieties including NUT Trees.

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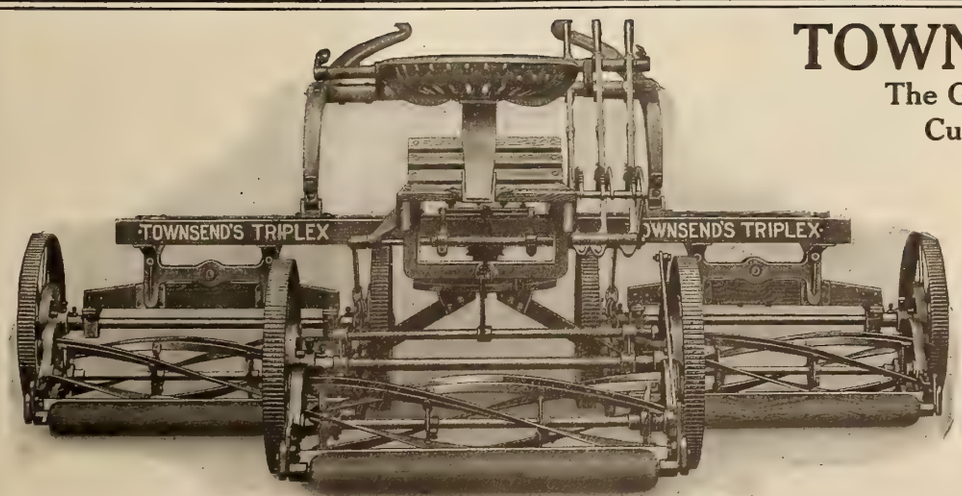

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The Greatest Grass-Cutter on Earth
Cuts a Swath 86 Inches Wide

Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse-drawn mowers with three horses and three men. (We guarantee this.)

Floats over the uneven ground as a ship rides the waves. One mower may be climbing a knoll, the second skimming the level, and the third paring a hollow. Does not smash the grass to earth and plaster it in the mud in springtime, nor crush out its life between hot rollers and hard, hot ground in summer, as does the motor mower.

Send for catalog illustrating all types of Townsend Lawn Mowers

S. P. TOWNSEND & CO., 23 CENTRAL AVENUE ORANGE, N. J.

DUTCH BULBS

For

Your Spring Garden

THE sprightly Crocus, the chaste Narcissus, the sweetly scented Hyacinth, the richly colored Tulips, the glorious Peony, and the charming Iris make it the sweetest perfumed and most colorful spot on earth when winter folds its downy sheets and steals away.

The Hyacinth, Narcissus, Tulip and Crocus will also bloom readily indoors from Christmas until April.

My bulb book describes all the well known, and many of the newest and rarest varieties. From it you can easily select those that appeal to you most strongly.

All orders must be in my hands by July 1st, not later. By ordering before that time you will receive the choice big bulbs teeming with life that I am importing annually to thousands of delighted customers. Send for my bulb book today, and remember orders will be accepted **until July 1st, not later.**

A. B. Vanderbeek Bulbs

172 Broadway Paterson, N. J.

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"ALL-CROP"

FARMOGERM

Fertilizer Bacteria

Dr. Earp-Thomas' latest and greatest contribution to Soil-Bacteria Culture. *"All-Crop" Farmogerm* is an extension of the well-known benefits of FARMOGERM (the standard inoculation for Legumes) to all field and garden crops, fruits, vegetables and even flowers. It is a composite culture of 37 different strains of seed and soil bacteria. Will supply bacteria to increase the yield of any crops and enrich the soil in nitrogen, obtained by the germs from the air. Costs only $1 per acre. Buy *All-Crop Farmogerm today.*

Read of the wonderful things *"All-Crop Farmogerm* will do for your soil in a circular we will be glad to send you Free. Write for it today.

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The Real Beginning of Summer

FINISH planting the new *Rose plants in the benches* if you have not already done so. Remember to thoroughly firm the soil; keep the plants well sprayed for red spider; keep the soil on the benches stirred continuously. If the house is too warm the plants will get soft and will be an easy victim to mildew. As the buds form, pick them off. Old plants to be carried over another season should be started in the "drying o " process, which consists of gradually reducing the water at the roots until the foliage drops and the wood hardens. The plants can then be rested and later pruned and started into growth again.

Carnation plants in the field or greenhouse must not be neglected. Keep the shoots pinched back. Spray about every ten days with bordeaux mixture or copper solution to keep under control the Carnation rust. Also constantly cultivate the soil between the plants.

Summer flowering bulbous plants, such as Achimine, Gloxinia, Begonia, etc., will stand liberal feeding with liquid manure. This is preferable to frequent repotting as it confines the plants to smaller pots and makes them more attractive.

Hard-wooded forcing plants, such as Camellia, Acacia, Oleander, etc., should now be plunged in the soil outdoors in some well protected place. Keep them well sprayed to prevent attacks from red spider; keep the pots mulched with pure sheep or cow manure to maintain good growth and also to relieve the necessity of too frequent repotting.

Select a place not far from the greenhouse and prepare it thoroughly for the young plants of *Bouvardia, Solanum and Stevia.* Do not neglect these plants, as next winter's results depend upon their present growth.

There are two methods of handling the *hardy forcing shrubs,* such as Climbing Roses, Lilac, Wisteria, etc. One is to carry them over in pots, in which case they should be fed freely; the other is to plant out in a rich border soil. I prefer the latter method, and a supply of plants that will allow one season's rest is advisable.

Bay trees should be sprayed frequently to keep down red spider. They are also subject to scale, which can be kept in check by an occasional spraying with kerosene emulsion or other good insecticide. If once infected by scale, the trees will have to be sponged, and this is hard, tedious work.

There are a number of plants belonging to different families that make attractive *winter pot plants*—Abutilon, Paris Daisy, Fuchsia, etc. They can all be propagated from cuttings made now, and should be grown in pots.

Sow a batch of *Primula malacoides* and others of this type. It is one of the best of all pot plants for winter work and deserves greater popularity. *Begonias* of all types can be propagated and should be kept growing after they have rooted, especially the Lorraine type which will start flowering if allowed to. This is the only opportunity to get any growth in the plants. Leafmold is essential for Begonias.

If a great quantity of *Cineraria* is desired, it would be well to start sowing seed now. Make a sowing in three successive months so as to lengthen the season of flowering. When only one lot of plants is wanted, July is the best month for sowing the seed.

Gardenias should be kept growing fast. Feed the plants freely if their condition warrants it. Liquid manures are advisable for the purpose. Bear in mind that it is a detriment to a plant to give it more fertilizer than it can readily consume. Keep the Gardenia plants well sprayed and pick off all the buds as they form.

Early in the month a large batch of *Chrysanthemum cuttings* can be put in. These plants should be finished in 6-inch pots and the blooms should be, if well grown, a nice size for all kinds of decorative work. Don't forget a quantity of the single Chrysanthemums as they are indispensable for cut flower purposes.

Palms and other foliage plants should be sprayed about every two weeks with a weak solution of tobacco water to keep down insect pests of all kinds. These plants are absolutely ruined if they are once attacked by insects.

Success with *fruit under glass* depends upon the attention they receive; the price of good grapes, peaches and nectarines is persistency. Do the pinching almost every day; the spraying must be as regular as clock work when weather conditions demand it; the plants must be watered with judgment.

Frequent applications of plant food, such as bone meal, guano, etc., are essential to the *border,* and the atmospheric conditions must be watched as closely as a mariner studies his compass.

Cyclamen, Primula, and Antirrhinum and other *pot plants* that are being carried over *in frames* must have the best of attention. Be careful not to over pot, and spray frequently but not carelessly. Do not spray until the soil in the pots is wet; simply moisten the tops of the plants.

This is the time to put *growth on ferns* of all types. The plants must be well watered, but over-watering is very bad and can usually be detected by the mossy formation on top of the pots. Feed the ferns freely with liquid manure keep an abundance of moisture in the fern house; and don't neglect to shade the plants on bright, sunshiny days.

Pansies are one of the finest cut flowers for winter use; the colors are brilliant and when well grown the stems are quite long. Seed sown now and grown along slowly in a coldframe where they are to remain for the winter will give good sized plants in fall in prime condition for producing winter flowers.

New York. W. C. McCollom.

June in the greenhouse means a general collection of summer plants—Orchids, Gloxinias, Ferns, Begonias, etc.

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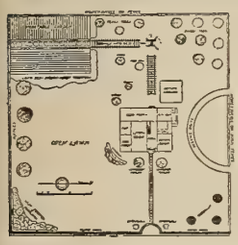

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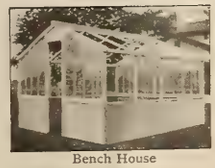
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The GARDEN MAGAZINE READERS' SERVICE

This department will help in dealing with general conditions. It cannot render personal professional service

A Substitute for Tile

I am about to have some work done in the bathroom and kitchen, using white Portland cement instead of tile. Can I make it waterproof with a polished finish like tile? Where can "composition" flooring be purchased and how laid? Can it be made waterproof?—E. J. F., Penna.

—THE best substitute for tile wainscoting in your bathroom, at less expense, would be plaster known as Keene's cement, which is obtainable from most mason's supply men. This should be painted and finally enameled. For the floor the patent floorings made from magnesia are quite satisfactory, provided they are properly put down. These may be laid about three eighths inch thick over a wooden floor, and as they are fairly flexible they do not need the solid cement foundation required for tile work. Incidentally the best color for wear is brown, which is obtained by using a filler of brown cork. Red is also durable; white, green and gray do not last so well. One precaution that must be observed in using this flooring is to be perfectly sure that there is no particle of lime, such as the usual debris resulting from plaster work, on the floor when the magnesia composition is laid. It is customary to treat the surface, after laying, with oil as a waterproofing and smooth finish. In laying the floor over an old wooden floor it is perhaps wise to apply it upon a thin metal lath nailed to the floor. By all means, however, have the work done by some one who knows how to apply the material and who will guarantee the results. It will not do to have an inexperienced mason or plasterer buy the materials and put them down. Another excellent floor for kitchens or bathrooms is "Battleship Linoleum" cemented down with waterproof cement. This would be hardly less sanitary than the magnesia compounds or tile.

How to Make a Driveway

What is the best way to construct an avenue and driveway? Owing to the size of my place, concrete is out of the question, so the material used would have to be sand and gravel; but I have been told that gravel must have a foundation of clay, which is almost impossible to procure here. Could I not use cinders or even coarse gravel, with a layer of sand on top?—A. N. R., Minn.

—THE cheapest way to construct a driveway will not be the best way. In almost every section of the country, except at the sea shore, a fairly good road may be made from the natural subsoil. This should have a slight crown (i. e., be higher in the centre than on the sides so as to shed the water). Cinders make an excellent roadway and eventually pack almost as hard as concrete. If you can get crushed stone, either trap rock or limestone, it will also make an excellent top dressing for a roadway. Since you have no clay, you need pay but little attention to drainage. A sandy road is usually in better condition if slightly damp. If your soil is a loose sea shore sand, you will have to excavate for about eight inches and fill with either gravel or cinders to get a foundation. A roadway for a private house receives so little wear that it can be constructed on principles that if applied to a public road would not last at all. Do not make the mistake of having too wide a road. Twelve feet will be ample unless you have a large house and wish the roadway to be in harmony with it. There is very little expert knowledge required to make a driveway. First stake out the road, then remove the sod and roots by grubbing or plowing, and then have the road shaped by hand. After a few rains the road will pack; but it is better to roll it if you can do it. If you are troubled with grass or weeds in the road, one of the various weed killers on the market will control this nuisance. Do not use sand for surfacing the road if cinders are available. Unless sand contains a certain amount of clay, it will never pack. If holes develop in the roadway, do not attempt to get rid of them merely by filling in more material. First dig out the hole until you can get rid of the foundation that is causing the trouble and fill in the hole, allowing several inches more for it to settle.

Cutworms!

The soil in my garden is so infested with cutworms and a long, thin white worm that nothing will grow. I have used tobacco dust and various other things without success. Even the soil about the roots of flowers and bulbs grown in a plant box indoors last winter was found to be alive with the thin white worms. What can I do to rid the soil of them?—H. S. H., New York.

—WHEN a garden becomes so badly infested with insects as yours seems to be, it is practically impossible to obtain satisfactory results from it, no matter how thorough and conscientious the efforts made to fight the pests. The wisest thing to do, therefore, is to plow the soil and, before harrowing, to apply a heavy dressing of air slaked lime or, if available in your vicinity, the so-called gas lime. After this, the soil should be harrowed and left without a crop for an entire year, receiving an occasional cultivation in order to keep down weeds and further starve out the insects. Late in the fall the land should again be plowed and left in rough furrows over winter when the frost action will further tend to destroy plant pests. The following spring another dressing of lime may be given and the soil fitted for cultivation.

Preservative for Wooden Posts

Is there any wood preservative that can be used on fence posts to make them last after being set in the ground?—P. P., Vermont.

—THE decay of cut wood may be retarded or prevented by various means. The easiest way to prevent the development of the fungi is to treat all wood which is exposed to atmospheric agencies. Charring will frequently be found successful. For getting longer service out of wood, it should be chemically treated by painting with some preservative, such as carbolineum or coal-tar creosote. Care should be taken, however, that only absolutely dry wood is painted. Timber immersed in a solution of one part of corrosive sublimate to 150 parts of water will be proof again t the attack of decay-producing fungi for many years. The best preservative is undoubtedly coal-tar creosote which can be either painted on the wood or pressed into it by various mechanical devices. We would suggest that you write to the Secretary of Agriculture, Washington, D. C., for a copy of Farmers' Bulletin No. 387 entitled "The Preservative Treatment of Farm Timbers," which will be sent you free of charge if it is still available. This Bulletin will give you a great deal of information on the subject.

Working Land on Shares

Regarding the working of land on shares: if the land is used for truck gardening and the owner pays for seed, fertilizing and plowing, what share of the product goes to the owner and what proportion to the one who works the land? The latter has, in this case, the use of the house on the land.—F. A. H., Ill.

—IT IS impossible to give any set and definite division of profits. Such matters must invariably be settled as a compromise or mutual agreement between the parties involved; and since conditions are rarely exactly the same on any two farms, the same arrangement is not likely to prove entirely satisfactory in any two cases. Analyzing the problem, it would seem as though the only way for you, or any one else, to solve it would be to first decide upon a fair rental for your land based upon its actual value. This, of course, will vary according to the location of the land. If near a city it should naturally give you a larger return than if in a typically rural locality. Next you will have to estimate roughly the amount you will probably have to invest in seed, fertilizers and the plowing which you say you are to pay for. With the sum of the amounts thus determined, you must then compare a fair wage for any person doing the actual labor on such a farm, although to this figure might be added an approximate amount to represent your farmer's investment in horses, tools, etc. This comparison should then give you a very fair ratio by which to divide the returns from the land. Here, however, you come to another problem. If your farm were raising only grain it would be entirely practical for you to take your share of the crop in its original form. If, on the other hand, the products are vegetables, fruits or other perishable material it would be decidedly poor economy to attempt any such arrangement. It would be much better for the farmer to market the entire crop and for you then to make the right division of the cash proceeds. But in this case your farmer would be carrying the considerable responsibility of marketing a specialized type of product which should entitle him to a slightly increased share in the returns above that already determined as suggested. These are only general suggestions.

Root Maggots on Onions and Cauliflower

What can I do to get rid of the root maggot that attacks onions and cauliflower?—W. T., Quebec.

—THERE is practically no way to fight the root maggot in an onion field; the only hope is to prevent infestation of the field in future years. To this end plants that show the presence of the maggot should be pulled out and destroyed, preferably burned, and a rotation of crops made such that no two crops of onions or species infested by the insect follow one another. It would be even better to allow two years or even three between such crops. A method of protecting cabbage, cauliflower and similar plants from this insect consists of cutting out of tar paper, or other durable material of this sort, circular or octagonal disks four or five inches in diameter. At the centre two cuts about an inch long should be made, crossing each other at right angles, and from one of these another cut all the way to the edge of the disk. As the plants are set in the ground one such disk should be slipped round the stem of each plant and pushed firmly down into the soil. Occasionally fine slaked lime or tobacco dust worked into the soil around the plants helps to control the pest.

Building a Cheap Tool House

I want to build an extra small barn and tool house 20 x 14 ft., with 16 ft. posts. Is this too high for the ground plan, and what angle or dip should the roof have? What wood shall I use for a cheap match floor on the second story; how would a prepared roofing material guaranteed for fifteen years, do for the roof?—L. H. H., New York.

—PROVIDED the structure is well built, there is no reason why a small barn of the dimensions given should prove unsatisfactory. In our opinion, however, it would be rather too high to be attractive from an architectural standpoint. It would seem wiser to attempt to follow the general scheme of the other buildings both as to proportions, color scheme, etc. The pitch of a roof should be determined with reference to the roofing material. Anything steeper than 30 per cent. (a one third pitch) is usually desired for shingles; a somewhat lower pitch may be used where tin, metal or prepared roofing is utilized. We do not see why any standard roofing paper would not be satisfactory, provided it is in harmony with the other elements of your farm group. Of course the best materials for you to use will depend on your local supply. Ordinarily Carolina pine is one of the cheapest sources of matched flooring. Possibly, however, ship lap in either pine or spruce can be obtained, if this would be satisfactory.

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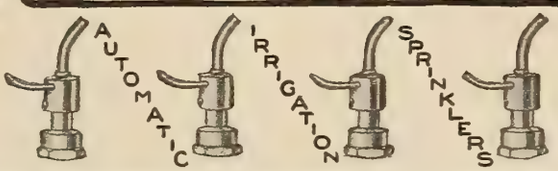

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COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Exhibitions in June

1. Milwaukee, Wis., Garden Club: meeting.
   Dayton, O., Florists' Club: meeting.
   Marshfield, Mass., Garden Club: meeting.
   Albany, N. Y., Florists' Club: meeting.
1-4. International Garden Club: summer flower show, Pelham Bay, N. Y.
2. Pasadena, Cal., Hort. Society: meeting.
3. N. Y. Botanical Garden, Bronx Park, N. Y.: lecture, "Flowers from Snow to Snow," J. Otto Thilow.
5. Retail Florists' Asso., St. Louis, Mo.: meeting.
   Colorado Florists' Club, Denver, Colo.: meeting.
   New Bedford, Mass., Hort. Society: meeting.
6. Florists' Club of Philadelphia, Pa.: meeting.
   Florists' Club of Washington, D. C.: meeting.
   Minneapolis, Minn., Florists' Club: meeting.
   Buffalo, N. Y., Florists' Club: meeting.
   Pittsburg, Pa., Florists' & Gardeners' Club: meeting.
   Lake Geneva, Wis., Gardeners' & Foremen's Asso.: meeting.
7. Short Hills, N. J., Garden Club: meeting.
8. St. Louis, Mo., Florists' Club: meeting.
   Chicago, Ill., Florists' Club: meeting.
   Omaha, Neb., Florists' Club: meeting.
   Rose fête, Willowmere, Roslyn, L. I., and lecture, "Hybridizing Roses," E. H. Wilson.
9. Conn. Hort. Society, Hartford, Conn.: meeting.
9-11. American Peony Society, Museum Nat. History, N. Y. City: show.
10. Shedowa Garden Club, Garden City, L. I.: annual flower and vegetable show.
   Dobbs Ferry, N. Y., Hort. Society: meeting.
   N. Y. Botanical Garden, Bronx Park, N. Y.: lecture, "Mysteries of the Flowers," H. W. Faulkner.
12. Cincinnati, O., Florists' Club: meeting.
   Park Garden Club, Flushing, L. I.: meeting.
   Rochester, N. Y., Florists' Association: meeting.
   N. Y. Florists' Club, N. Y. City: meeting.
13. Syracuse, N. Y., Rose Society: show.
14. Morris Co. Gardeners' & Florists' Society, Madison, N. J.: meeting.
   Short Hills, N. J., Garden Club: meeting.
   Nassau Co. Hort. Soc., Glen Cove, L. I.: rose show.
15. Marshfield, Mass., Garden Club: meeting.
   Cook Co. Florists' Asso., Chicago, Ill.: meeting.
   Garden Club of New Rochelle, N. Y.: flower show.
16. Pasadena, Cal., Hort. Society: meeting.
19. Florists' & Gardeners' Club of Rhode Island, Providence, R. I.: meeting.
20. Gardeners' & Florists' Asso. of Ontario, Toronto, Can.: meeting.
   Gardeners' & Florists' Club of Boston, Mass.: meeting.
   Portland, Ore., Floral Association: meeting.
21. Tarrytown, N. Y., Hort. Society: meeting.
   Rhode Island Hort. Soc., Providence, R. I.: meeting.
   Short Hills, N. J., Garden Club: meeting.
22. Worcester Co. Hort. Society, Worcester, Mass.: Rose and strawberry show.
23. Conn. Hort. Society, Hartford, Conn.: meeting.
24. Dobbs Ferry, N. Y., Hort Society: meeting.
26. Park Garden Club, Flushing, L. I.: meeting.
28. Short Hills, N. J., Garden Club: meeting.

The Inconsistent Dahlia

MY STUDY of the Dahlia has led to me observe its extreme fickleness and the fact that it can always be depended upon to do the unexpected. When raised from seeds from a single flower an almost infinite variety may be obtained, and if the seeds are saved from an especially fine specimen, it can be depended upon that none of the seedlings will be like the parent.

Some plants will grow much faster than others and bloom more freely under exactly the same treatment. For instance, two plants of the same variety and the same size, set out at the same time and only three feet apart, produced entirely different results. One began to bloom freely early in August while the other did not bloom until after September first, and then not at all freely. We are, of course, all familiar with their perversity about blooming at the proper time for exhibition purposes, the finest flowers always appearing immediately after a show.

There is a great variety of cultural directions given by different authorities. One will tell you to thoroughly enrich the earth before planting the tuber, or plant, while another will say to plant in the poorest of soil. One will say to water freely while the other says not to water at all. Most authorities agree, however, that a light soil is necessary for the best results. One old gardener, however, told me that success depended entirely on the weather!

After thinking over my numerous failures and few successes, I have almost come to believe "Inconsistency, thy name is Dahlia." It appears to me that the cultivation of Dahlias is almost more a pastime of men than of women—of course, in proportion to the number of men and women who grow flowers for pleasure—and I wonder if their very inconsistency may not be the reason why they especially appeal to the masculine taste!

They may possibly appeal on account of the freedom of bloom and the extent to which the flowers and even the plants may be cut back without injury and even with the very best results. The more you pinch off the new shoots and buds the larger flowers you have, but also the fewer. I believe that, starting with but one stem at the ground, it is desirable to allow but one third the shoots to develop; pick off two out of every three both on the main stalk and also the branches. This produces a plant small at the base and broad at the top, allowing a free circulation of air. A plant of this kind (if she is feeling in the humor) will develop quantities of fine flowers, provided the roots are able to supply sufficient nourishment and moisture.

After a plant has bloomed a month or so and a new shoot starts out near or below the ground, it is often desirable to cut off the old stalk just above the new shoot. The new one will then grow exceedingly fast and blossom in a couple of weeks, the rapid growth being due, of course, to the fact that it has a fully developed root system in good working order.

This root system, to properly feed the plant, must be so situated that it can absorb from the ground plenty of nourishment. This means a porous, light soil through which the small roots may spread as far as they will—also through which an abundant supply of moisture may reach their roots, which moisture should contain the requisite plant food.

Whatever the results obtained one season, and in spite of the inevitable disappointments, the following spring finds one's enthusiasm as great as ever, and we are more determined than ever to obtain some of the ten-inch flowers so glowingly described by Dahlia specialists.

LEWIS C. RICHARDS.
Garden Club of New Rochelle, N. Y.

What to Plant with Hibiscus

SUCCESSION crops always interest the amateur who believes that borders should be filled throughout the season and who objects to bare spaces where well-raised plants should rear their lovely heads. A large group of Hibiscus Moscheutos fills a well chosen place in my long border and nothing is lovelier than the warm mallow pink and creamy white of the splendid blossoms in August and September; but alas, Hibiscus is herbaceous! Moreover, it makes so late a start and the tender shoots are so slow in acquiring stature that constant mortification was my portion during that time of glory, the Tulip period, until I planted thickly in and through the Hibiscus plantation colonies of Mertensia virginica and Tulips George Shaw and Princess Elizabeth. Mrs. Francis King recommends Tulip Le Reve with Mertensia and it should be lovely, having an advantage over the Darwins in being lower in stature and therefore presenting its cups of an altogether indescribable shade of faded rose and buff below the Mertensia. Certain yellow Tulips, Mrs. Moon and Moonlight, and the pale Vitellina, with Blue Bells, would also make a spring picture worth space in any garden.

By midsummer, when the Hibiscus has made a thrifty stand of many tall shoots crowded with bright green leaves, both Mertensia and Tulip have disappeared and underground are preparing for another spring.

A plantation of great beauty at very little cost is the species Tulip, sylvestris, beneath the drooping boughs of an old Willow. The poetic beauty of long Willow withes clothed in tenderest green of baby leaves, floating above cups of warm yellow which sway with the grace that is found only in those sappy flowers which have never been "improved," leaves a lasting memory.

Pennsylvania. HELEN M. SHARPE.

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opens your eyes to all the mysteries, all the charm of the little worlds within worlds about you until, as John Burroughs puts it, every walk in the fields or wood is "an excursion into a land of unexhausted treasure."

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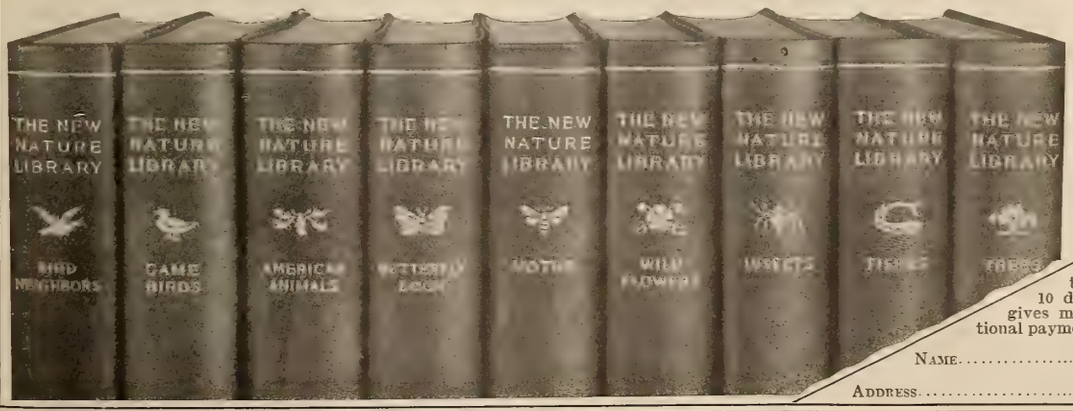

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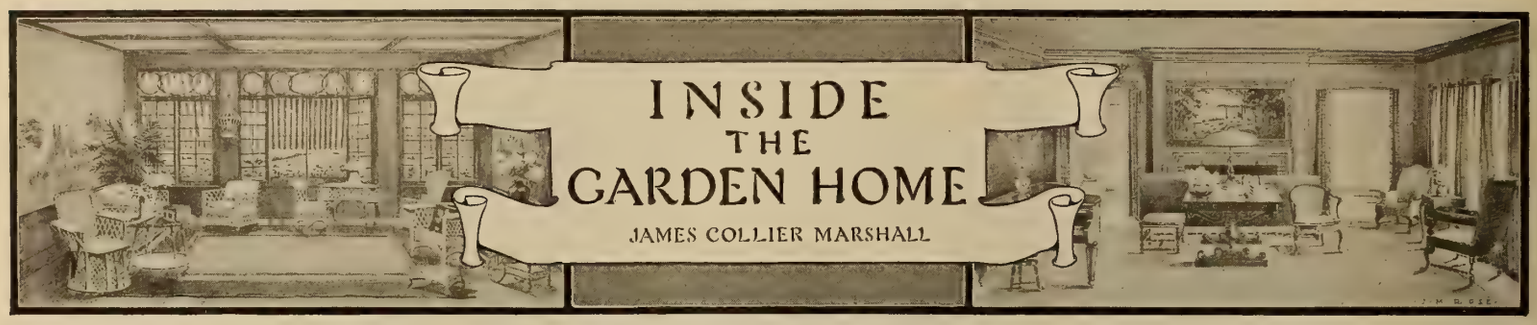


Shopping Talk

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

THERE are times, dear reader, when the desire to talk shopping will not down, and this spring, under the spell of the many interesting and useful things to be seen in the shops, it fairly clamors for expression and will not be denied!

This painted plaster parrot is most decorative and costs $6.00

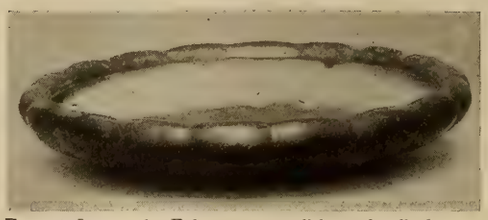
The difficult thing is to know where to begin, but as shopping conversations are invariably irrelevant, we will begin with porch rugs, always an absorbing subject.

There are a number of new materials and patterns in the market this year, most of them coming from the Orient, that seem to be not only better looking but better made than the majority of their predecessors, being sewn twice in cross stitch instead of singly as heretofore. Such is the excellent rug shown here, whose smooth, securely sewn braidings of rushes are decorated with geometric figures in black wool. These, coming in round and oval forms in many sizes, are a welcome relief from the deadly plain and over-decorated rugs of past seasons. Furthermore, they lie flat and look cool.

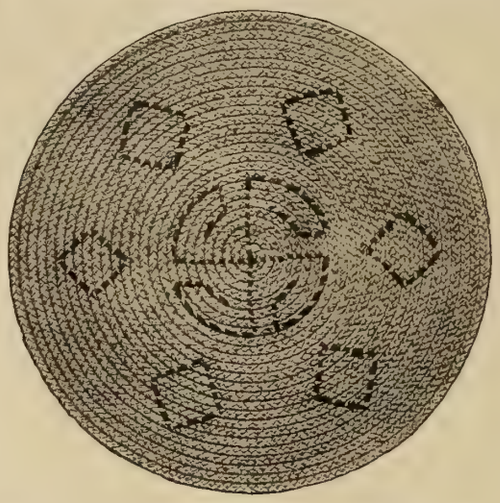
There is also a banana fiber rug made up in square units, very securely sewn together, that also makes a very good appearance, and though it does not seem so finished as the above mentioned one, it will stand harder wear. These are even less expensive, ranging upward from the 2 x 3 feet size of 6 squares at $1.50.

Apropos of porch furnishings, the lamps for this use are most unique this year, there being some really remarkable shades designed for hanging fixtures. These

Cloths of printed cotton are very good for summer use. This pattern comes in several sizes at commensurate prices


For cut flowers the Fulper pottery dish can hardly be surpassed. Verde antique, 14" wide, it costs $7.00

really must be seen to be appreciated as no idea can be gotten from a description. Suffice it to say that they are bag-like arrangements of plain or flowered silk or


Rugs of braided rushes decorated with wool designs are excellent for summer use. This 6 ft. one costs $12.00

cretonne that entirely cover the fixture, as wide at the top as one desires, being held out by a wire frame, either flat or curved, the material hanging straight or

The beauties of modern cut crystal and glass are greatly enhanced by their ground patterns as well as the unusual scalloped edges

gathered together at the bottom, and finished with ball trimming or tassels as one pleases. Usually these are of washable materials of soft colors in which rose predominates, or some plain color lined with rose, so that it will shed a beneficent light on everyone.

Regarding wash materials, it is remarkable how many colorful prints for table use are being shown this spring, not only in coarse linen but in cotton as well, and it must be said that they are a very attractive and sensible substitute for damask during the hot season. The plum blossom pattern shown here printed on cotton is one of many designs that come in several sizes and all of them are good-looking.

Gay faience jars are excellent porch parasol and stick holders

Indeed, floral decorations for the table this season seem limited to the patterns on the cloths; a centre table decoration of flowers being an exception, the use of fruits having almost altogether superseded the customary blossoms. Consequently, the plain china and porcelain dishes that have lain unappreciated on top shelves may now be put into use with great success, as the plainer the dish the better the effect of the fruit decoration. Plain bone colored Wedgwood is splendid for this purpose, and those having borders of pale blue leaf designs are equally good. Some of these bowls have round lattice work covers that are extremely effective when disclosing the rich tints of cherries, grapes and tangerines.

Speaking of fruit bowls, one cannot omit mentioning the lovely cut crystal ones with a scene cut in the bottom after the manner of the early Italian cut crystals that are so prized to-day in museums.

Every porch needs another pillow. Here is an unusual one of silk floss covered with an Indian print, 22". Price, $1.50

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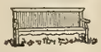
Old English Garden Bench, Table, and Chairs. Johnson Design. Bench 7 feet long. Price, bench $50.00, chairs $22.50 each, table $18.00.

Old English Garden Chair. Johnson Design. Price $22.50.

Old English Garden Set. Hodenpyl Design. Arm chairs 2 feet wide; other chairs 18 inches wide; table 3 feet in diameter. Price, table $9.00, arm chairs $12.00 each, other chairs $9.50 each.

English Garden Seat. Hodenpyl Design. Curved seat, slanting back. Total length 4 feet 6 inches. Price, $22.50. $5.00 for each additional foot.



Old English Heavy Garden Seat. Charles Design. Curved seat, slanting back. Length 7 feet. Price. $30.00.

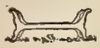
Old English Heavy Garden Chair. Charles Design. Curved seat, slanting back. Width between arms, 1 foot 10 inches. Price $18.50.

Old English Heavy Garden Seat. Ketcham Design. Curved seat, slanting back. Length 6 feet. Price, $35 00.

Old English Heavy Garden Chair. Ketcham Design. Curved seat, slanting back. Width of seat between arms, 1 foot 10 inches. Price, $20.00.

English Garden Seat. Waterson Design. Curved seat, slanting back. Length 5 feet 6 inches. Price, $27.50. $5.00 for each additional foot.

Old English Garden Seat. Allen Design. Curved seat, slanting back. Length 4 feet 10 inches. Price, $25.00. $5.00 for each additional foot.



Garden Seat. Batterman Design. 5 feet 10 inches, outside measurement. Price, $18.00.

Outdoor Comfort Chair. Mills Design. Angle of seat distributes weight of body from knees to shoulders. Painted light or dark green, or stained. Price, $8.25. Children's size, $7.00.

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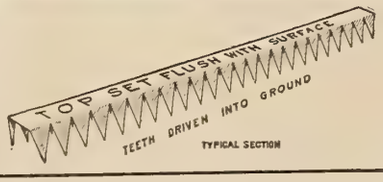

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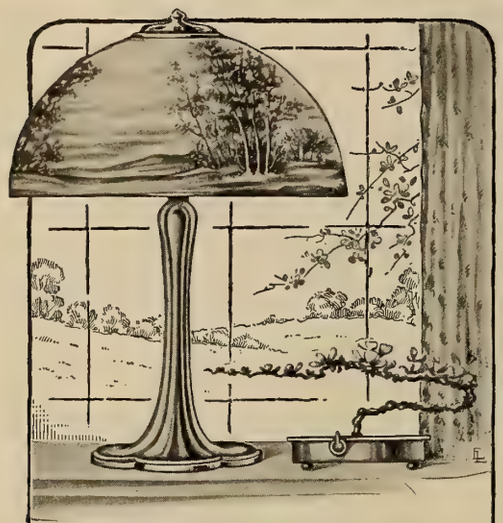

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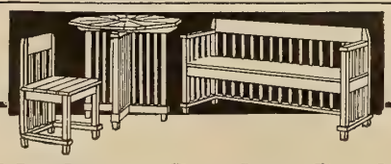

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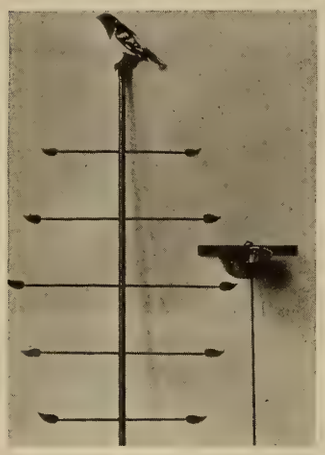
Some New Garden Furnishings

UNTIL recently the very high cost of decorative furnishings for the lawn and garden have placed them beyond the reach of the ordinary purse, but an evergrowing appreciation of their real values as well as their beauties has brought a gradual readjustment of prices until now very good looking and durable seats, benches, tables, chairs, etc., may be had at very reasonable rates. This is particularly true of hardwood furniture that, each year, is growing more popular for garden and lawn use.



Whatever its cost, nothing is more effective than these simple wooden seats and benches that breathe hospitality in every line. In what other material could be duplicated the charm of the English rose arch with seats pictured here? Interesting as it now is, imagine its beauty under a shower of blooming roses. Could the garden have a more perfect gateway? Its proportions, 9 ft. high, 8 ft. 2in. wide, seats 4 ft. long, are well considered, allowing for a full growth without losing its effectiveness, and its price of $75 is most reasonable when one considers that it is hand made of hardest wood and painted three coats in either white, light or dark green.

There are less expensive rose arbor seats that are especially good for nook effects. One of these has a

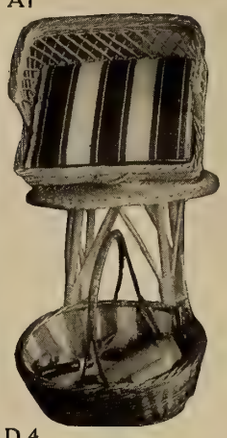
removeable seat 4 ft. 6 in. long, with the standards at the seat ends and the arch across its length leaving the back open. This arch is only $20, while the seat with slanting back comes at $22.50. Apropos of supports for climbing flowers, this dainty trellis surmounted by a painted bird is very attractive. These come in three sizes and this, the largest, sells at $2.75.

The other article illustrated is a metal seed cup for bird food, a very humane addition to the garden for all seasons. It costs $.75.

Not less interesting in either effect or price is the simple bench pictured here, that, made of hard 2 inch lumber, 5 ft. long by 17 in. high and 16 in. deep, sells at $9.

The new wicker garden pieces this season do not greatly differ from those of last year, but there are various little improvements that add materially to their appearance as well as to their comfort. For instance, the good old hooded beach chairs have this year cunning little awnings of the same materials as their cushions. These awnings are regulated with cords after the manner of the usual window awning. Needless to say, the effect is very good while much is gained in actual comfort.

A1



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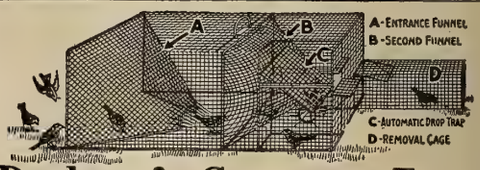

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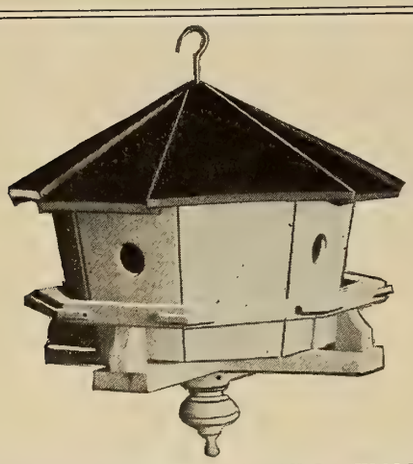

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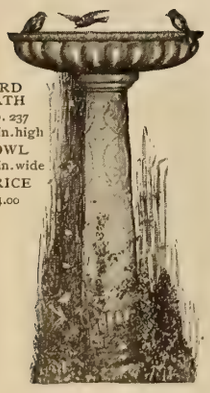

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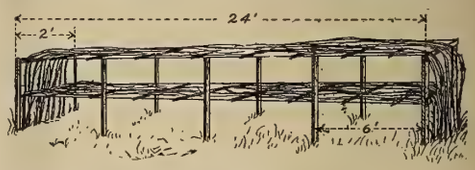

mensions for trellises of two-roots, or hills—one at each end of trellis. Along the top of each row of stakes is run and fastened with staples, a wire at least one eighth inch in diameter. Another line of this same wire is attached to the posts (on inside preferably) at two or two and one half feet above the ground. These wires are the "sleepers" for the respective "stories" or "decks" of the trellis. At each end of the trellis, nail between the posts two sticks, one even with the lower strands of wire and one at the top. Next, for each deck, saw eight pieces of inch thick board having them just twenty-six inches long and about two inches wide. In the ends of these saw an inch-deep V-shaped notch (such as in a swing-board). These boards are placed at equal distances apart, crosswise between the rows of wire sleepers of each story, and serve as a support for the vines which are trained to run over the trellis thus formed.

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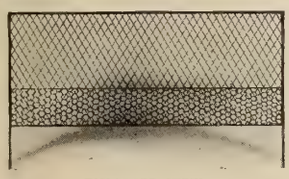

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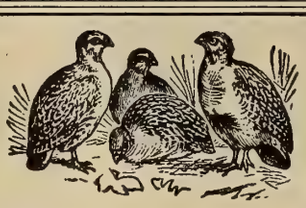

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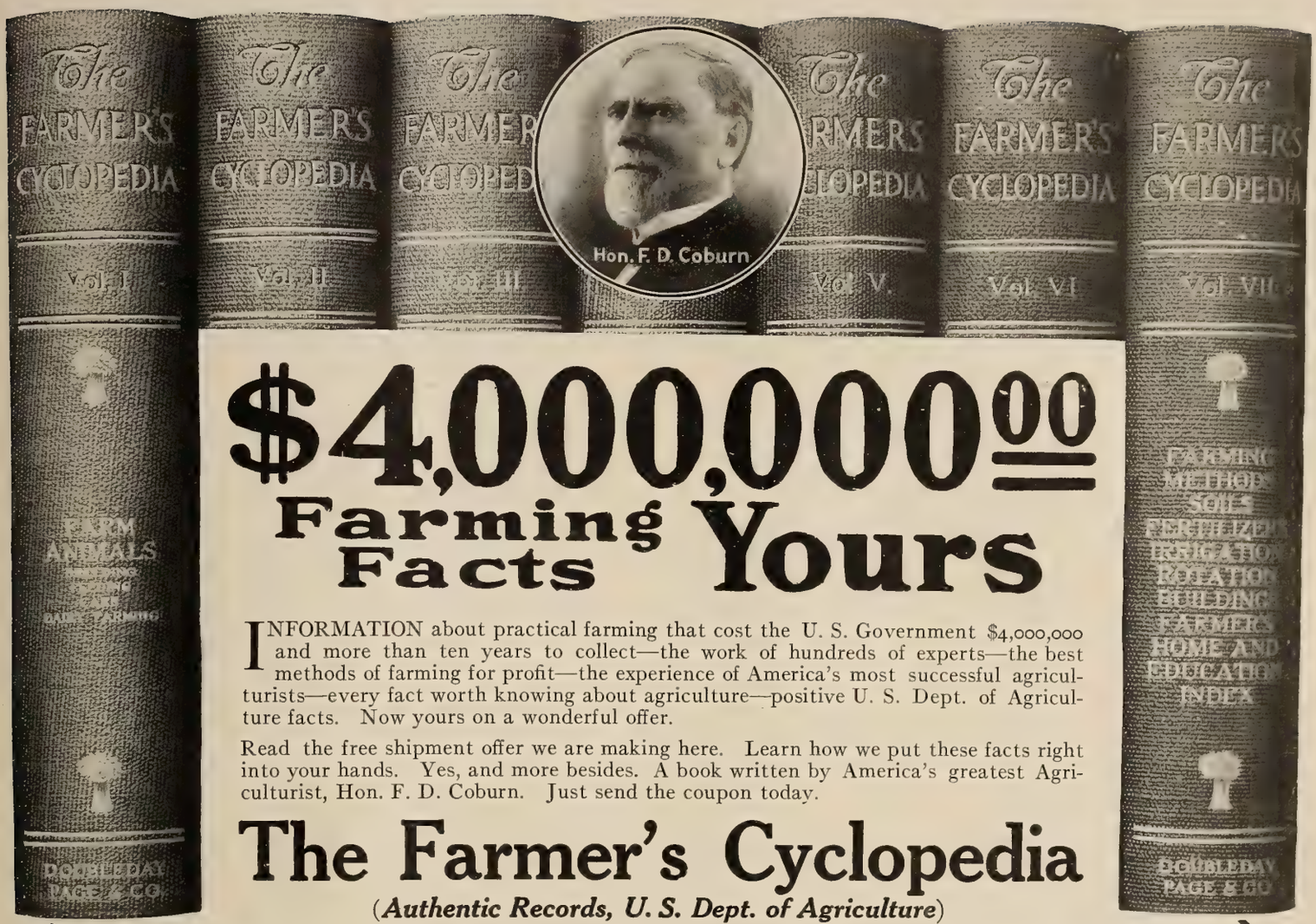

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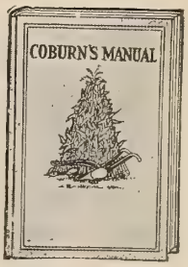

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Berliner Gramophone Co., Montreal, Canadian Distributors

COUNTRY LIFE PRESS, GARDEN CITY NEW YORK

Vol. XXIII, No. 6 JULY, 1916 15 Cents a Copy

THE GARDEN MAGAZINE

DOUBLEDAY PAGE & COMPANY GARDEN CITY, N.Y.

Spray Now — and all the Time: It Pays

THERE is one Month's Reminder that applies to every month. That is: *It pays to spray*—and it costs money not to.

Spray regularly. You may have killed all the insects on your plants, but there are plenty more where they came from. New ones will arrive—from the ground or from a neighboring field—to take their places. Don't wait for heavy infestation.

Spray thoroughly. Every portion of the plant should be covered and every insect drenched. One aphid, left alive now, is capable of welcoming you a month later with a tremendous number of descendants. The illustration in the upper right hand corner is illuminative. It looks like a lot of ink spots on a cabbage stalk—but that is about what aphids look like in real life and it is necessary to get each one in the only sure way: spray the whole plant.

Spray knowingly. Before you go ahead, it is well to know what sort of insects you are trying to destroy. If you spray with the wrong class of insecticide, the insects, instead of being killed themselves, will continue to have a perfectly delightful time killing your plants. Your efforts will have been worse than useless.

Insects destructive to plant life are of two distinct types

Those, like beetles and caterpillars, that injure the plants by *chewing*; and those, like Aphids or plant lice, that injure the plants by *sucking*. The former may be controlled by spraying the foliage with a stomach poison. The latter, since they insert their slender beaks into the interior of the stem or leaf and so avoid the poison, can be destroyed only by a preparation that kills when it comes into contact with their bodies.

"BLACK LEAF 40"

is a contact insecticide that has the endorsement of authorities everywhere. It is guaranteed by the manufacturers to contain 40% of nicotine by weight—the exact proportion needed in a safe and effective spray, and one that you cannot be sure of obtaining by the messy method of stewing out your own preparation.

Whether you spray for "sucking" or for "chewing" insects, it is imperative that you have a *good* pump. We have designed one. We did not try to see *how cheap* a pump we could make, but *how good* a small pump could be manufactured. Yet you will find the price remarkably low. It is a simple affair, as you can see from the illustration—but one of the reasons it is so good is because it is so simple. We believe you will find that it will stand up under the most exacting use. With it you may do effective work not only in the application of "Black Leaf 40," but also with any kind of insecticide or fungicide in the garden, or with disinfectants about the barn, poultry houses and other buildings.

Special Announcement

On request, we shall be glad to send you complete Bulletins, as they are published, on the use of "Black Leaf 40" for orchard and garden pests. We should also welcome the opportunity to give you free information and advice on your special problems connected with insect pests and their control. For the Bulletins, and for this assistance, write to our *Garden Service Department*, composed of highly trained men of wide experience.

The SPRAY PUMP and the ONE OUNCE BOTTLE **$2**

Price of the Combination, complete

Write us direct, inclosing price, and we will send to you to any railroad point in the United States by express prepaid this handy and efficient spray pump and an initial one ounce bottle of "Black Leaf 40." Additional supplies of "Black Leaf 40" can be obtained from dealers at 25c a bottle, containing one ounce by weight of the concentrated solution, sufficient to make six gallons of spray. For large spraying operations, "Black Leaf 40" is packed in larger containers.

THE KENTUCKY TOBACCO PRODUCT COMPANY, Inc.

LOUISVILLE, KENTUCKY

Underground System for Lawns

Rain Cloud Nozzles
$2.00 to $3.00
f. o. b., N. Y.

Overhead System for Gardens

Rain When and Where You Want It

by installing

Cornell Systems of Irrigation

CORNELL Overhead and Underground Systems equipped with patent adjustable Rain Cloud Nozzles provide thorough, scientific, economical and effective irrigation where and when it is wanted and do away with the inefficient and troublesome garden hose.

Cornell Systems are inexpensive and economical in operation and represent a distinct saving in water consumption and cost of labor, by reason of even distribution and simplicity of control, the turning of a valve being the only operation. They can be installed at any time without injury to lawns or gardens. Our systems have no unsightly overhead piping to mar the landscape.

Our services include a survey of your property, together with plans and estimates covering the complete installation of our systems—also water supply and pumping plants. We also manufacture portable sprinkling apparatus to cover areas of from 25 to 85 feet in diameter.

Write to-day for **illustrated booklet.**

W. G. CORNELL COMPANY

ENGINEERS AND CONTRACTORS

Plumbing, Heating, Lighting, Automatic Sprinklers, Sewage Disposal

45 EAST 17TH STREET NEW YORK

The Unrivalled Climate of Mount Desert Grows Ideal Hardy Plants

Our Nursery is the most Northerly hardy plant garden in America

THE long severe winters and cool moist summers combine to produce plants of the greatest innate hardiness and vigor, which they retain when replanted in their new homes.

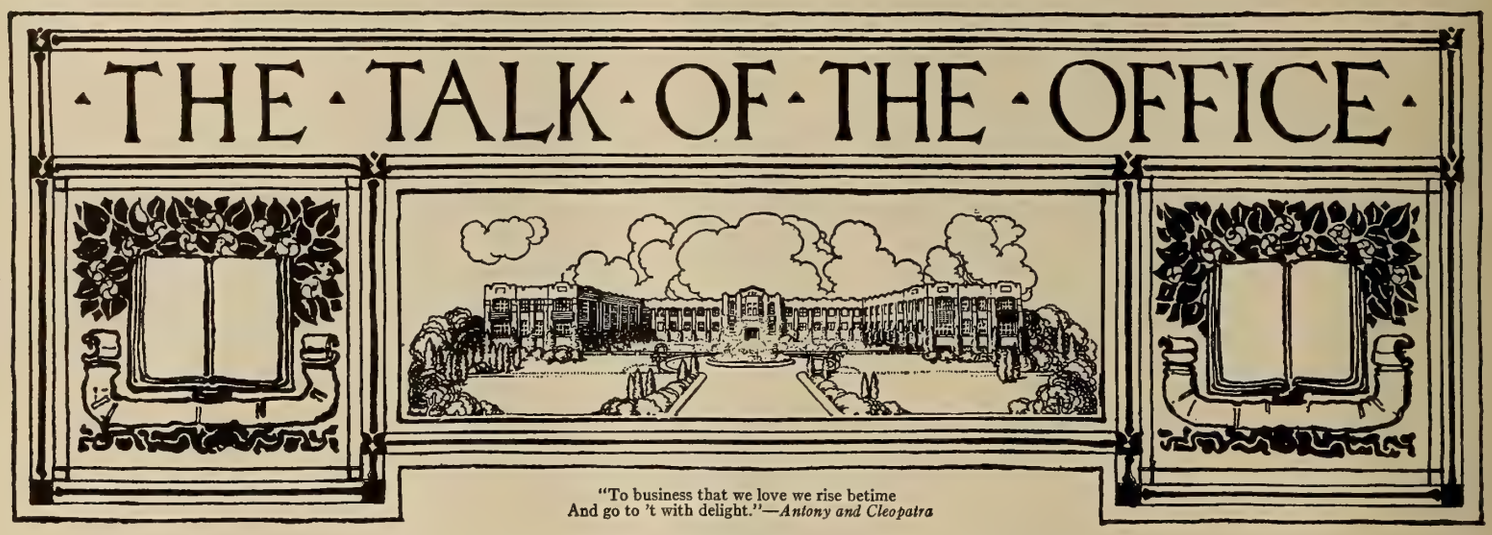
Northern Grown Stock is best for shipping at any season

It starts later in the Spring and ripens earlier in the Fall. For late Summer planting we can ship whenever you are ready to receive.

Cut Specimens on Request

During their flowering period we are ready to send sample boxes of cut selected varieties (named), anywhere in the first, second or third Parcel Post zone—also our new illustrated catalogue.

Mount Desert Nurseries **Bar Harbor, Maine**



"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

O. HENRY

YEAR after year the sale of Sydney Porter's (O. Henry's) books grows. Not far from 125,000 sets have now been sold, and all summer the presses will be busy preparing stock for the fall and winter. There are always interesting things floating about the shop in connection with the name of "O. Henry": for instance, here is a note from Professor Stephen Leacock, of McGill University:

I am greatly obliged for your letter about my essay on O. Henry, and very glad to hear about the English edition. I was first led to O. Henry (two years ago) by noticing that reviewers of my books when they wanted to pay me a compliment said, "There is here at times something that suggests O. Henry"; and when they wanted to do the reverse they said, "Compare this idiotic drivel with such work as that of O. Henry." I wondered who O. Henry was, so one day I went into a store here and asked if they had a book by O. Henry. They had one ("Strictly Business"). I took it home and read as far as the end of "A Municipal Report," then I telephoned to the store and said, "Send to New York and get me every last word that O. Henry wrote."

I imagine that a lot of people have felt that way about his books.

In a new volume of essays by Professor Leacock, entitled "Essays and Literary Studies," there is a most delightful one on the books of O. Henry which was written chiefly to tell English readers that they would do well to try to understand the popularity of the author of "The Four Million."

There is a real biography of Sydney Porter in the making, by Professor C. Alphonso Smith, of the University of Virginia, which will be ready, we confidently expect, this fall, and a volume of his letters will be published some time in the autumn.

A CURIOSITY FROM THE TRENCHES

Mr. E. K. Hoak, the manager of our Pacific Coast office in Los Angeles, sends us this note, which may interest our readers:

Letters are laid upon my desk every month addressed to the publications represented by this office from almost every country in the world regarding investments, travel, communities, lands, etc., on the Pacific Coast and Southwest Country.

Mr. R. B. Bishop, Vice President of the Reynolds Mortgage Company of Fort Worth, Texas, has forwarded to me a clipping from the *World's Work* of an advertisement of the Reynolds Mortgage Company, which was taken from a dead Turk's pocket at the Dardanelles by Corporal S. Renfro, R. A. M. C., a Texas boy serving under British colors, who is now in a hospital at Netley, England, and forwarded by him to Mr. Bishop. In his letter, Renfro says:

"I don't happen to have any money to invest, but you will probably be interested in this bit of paper, with your advertisement, when I tell you where I found it.

"It was one of the most peculiar coincidences I think I've ever had happen to me. I found the page, torn from some American magazine evidently, in a dead Turk's pocket at the Dardanelles. Where the Turk got it from I don't know, unless he took it off one of our chaps, after he had been knocked off. The rest of the page was covered with blood, so I tore it off.

"I am a Greenville boy, and your advertisement brought home right up close to me, although I was in that God-forsaken hole, dodging shrapnel and snipers. I was wounded in the fight at Suvia Bay, on August 7th. It was hell there, and while I was lying in a dugout at the field hospital a Jack Johnson landed on top of the dugout and buried me.

"I came back to England with a set of shattered nerves and a Turkish bullet in my leg, but kept the piece of paper, and I would have sent it before, but have been unable to write on account of my nerves. However, I am much better, and I hope to get my own back on the Turks before this little dispute is settled, but I think I've accounted for a few of them.

"I've a cousin, Elmer Renfro, cashier of the Fort Worth National Bank. If you happen to know him, tell him I've learned to use the .44 Colts I had the last time he saw me.

"I trust you will excuse me taking this liberty, but the idea of sending this to you appealed to me so strongly I couldn't resist it; also, if you have any doubts regarding the circulation of this magazine, whatever it is, this letter will remove those doubts, because it evidently took some circulating to circulate it into that Turk's pocket."

With this letter and clipping, Mr. Bishop writes: "How is this for advertising? I have the original framed and in a conspicuous place on my desk. This was clipped from *World's Work*."

ADVICE ABOUT FINANCE

The story related above impresses us again with the interest shown in what we call The Readers' Service. This department was started about ten years ago in a small way, and was especially aimed to guard our readers as much as possible from get-rich-quick concerns, which were at that time (and are even now, but to a much less degree) taking money out of the pockets of widows, orphans and the inexperienced generally.

At first a very large number of letters came to us asking advice upon investing often large sums in the veriest "cats and dogs" and the most highly speculative stocks. These letters were easy to reply to, because they represented the activities of a gang of crooks which at that time flooded the United States mails with its circulars. Later the Post Office Department attacked the worst of this class. Some went to jail, and many were frightened out of the business. But during all these years letters from people who have money to invest have kept coming in increasing quantities, the intelligence of the would-be buyers has constantly improved, and the queries have represented many, many, millions of dollars.

Our readers in the *World's Work* have seen the hundreds of questions and answers printed in the magazine itself, and know to what pains we go to give reliable information. We have on the staff of the magazine a man who makes this his life work, and the work is done as conscientiously as he knows how to do it. No letter ever leaves our hands, no information or name is ever given to a broker or bondseller, and we hope and believe that we have served our readers well.

In this Service Department there are many other branches of questions and answers, and every kind of thing is asked about—gardening, bulbs and plants, destructive insects, soils and farm animals. The letters come in hundreds, and sometimes we are tempted to say that if our subscribers would buy and read the Garden and Farm Almanac for 1916, which costs a quarter, a good many of these service letters need never be written.

However, they are all welcome, and the force of the Service Department is always at your command.

"THE LIGHTNING CONDUCTOR DISCOVERS AMERICA"

by the Williamsons, is published, and is selling as it well deserves to do. One fifty at all bookstores.

"THEY SHALL NOT PASS"

Mr. Frank Simonds, who first attracted attention by his articles on the War in the New York Evening *Sun* and afterward in the New York *Tribune*, has written a little book with the above title, and it refers, of course, to Verdun. It is a book which is illuminating and deserves a place beside Kipling's latest two little books, "The Fringes of the Fleet," and "France at War." Ask your bookseller about them.

THE GARDEN MAGAZINE

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ARTHUR W. PAGE,
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LEONARD BARRON, Editor

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S. A. EVERITT, Treasurer
RUSSELL DOUBLEDAY,
Secretary

Entered as second-class matter at Garden City, New York, under the Act of Congress, March 3, 1879

Consult Our Engineers This Summer

You are on your property now and this is the time to make your plans for tree and shrub planting, landscape development, etc.

Our Landscape Department, specializes in forest landscaping, arboriculture, development of country estates, pleasure woods, forest parks and game preserves, state and town reservations. We make the most accurately finished plans or a merely suggestive field sketch, as needed.

Laying out vistas, roads, paths and trails; planting schemes and lists of material for shade and ornamental planting, avenues, screens, hedges, windbreaks, etc.

Examinations and advice regarding unthrifty, diseased or injured trees. We coöperate with landscape architects and state or city park commissions.

Our Service Department specializes in woods work, tree work, general work. This organization is equipped and accustomed to carry out the plans and specifications of our forest engineers, and is available either for work planned by them or to work independently for owners or other foresters, landscape architects and architects. The department is equally adapted to the needs of the man who wants two lawn trees cared for and the association or owner who is developing a thousand-acre tract.

Our Nurseries, Little Tree Farms of America, are at Framingham, Mass. (near Boston). In our new and instructive catalogue are listed twenty million forest, shade and ornamental trees. All grown here from hardy seed, the very best at the lowest prices. Evergreens and hardwoods in all desirable species. We import nothing. We store nothing. We dig everything fresh upon order. If you are within motoring distance of Framingham, visit the Farms. "It is a most interesting sight."

Send for our Catalogue

Send for our Service Bulletin *Send for our Planting Bulletin*

AMERICAN FORESTRY COMPANY
Division A3, 15 Beacon St., Boston, Mass.

SHARONWARE BIRD BATHS

SHADY LAWN BIRD BATH

are attractive in design and practical in construction. The floor of the bowl slopes very gradually toward the centre so that the birds readily regain a foothold and are protected from drowning. Because of the semi-porous nature of the concrete, the water is absorbed in 24 hours. Hence the bath is always fresh and consistently sanitary.

Endorsed by the National Audubon Society

SHADY LAWN BIRD BATH
45 inches high, 30 inch bowl. Price (F. O. B. New York) **$17.50**

MORNING DIP BIRD BATH
17 inch bowl, 6 inches high. Price (F. O. B. New York) **$4.00**

SUNNY HOUR SUNDIAL
37 inches high, complete with bronze dial Price (F. O. B. New York) **$15.00**

There's an interesting story behind Sharonware. Send for it and catalogue illustrating a wide variety of concrete garden furniture.

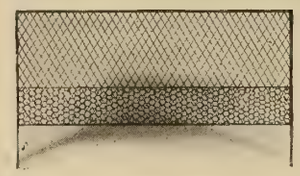
SUNNY HOUR SUNDIAL

SHARONWARE WORKSHOP
82 Lexington Avenue, New York City

"Buffalo" Portable Poultry Runways

Just what you want for an up-to-date movable poultry yard — neat, easy to handle and erect; simply push legs into ground. Strong and durable — last a lifetime — made from 1½" diamond mesh, heavy galvanized wire fabric and galvanized round iron frame with 1" hexagon netting along bottom 12" high — can be moved to other locations at will.

Very handy for young chick or duckling runways or can be used for grown chickens, ducks, geese, etc., and make any size yard you wish.



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Made in standard size sections as follows:

7' long x 5' high (Six sections or more) Price each section	$3.00
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6' x 2' (Six sections or more) Price each section	1.25

Special sizes made to order.
F. O. B. Buffalo.

For orders consisting of 10 sections or more we will allow an additional 10% discount from the above prices.

Order sizes best adapted for your purpose to-day. Send money order, check, New York draft or currency by registered mail and we will send you the best article on the market for your poultry.

These are introductory prices and will be advanced soon. Don't delay—send your order now.

BUFFALO WIRE WORKS CO.
467 Terrace (Formerly Scheeler's Sons) **Buffalo, N. Y.**

July Planting

You can have a shady lawn like this now with trees 15 ft. wide, if within 60 miles of New York. Guaranteed to grow satisfactorily.

Evergreens 2 ft. to 20 ft. in perfect condition for successful planting. Carload shipments to a thousand miles.

Are there big pines in your neighborhood you would like to have us move?

Send for literature that will help develop your place according to the local flora.

HICKS NURSERIES
Dept. M. **Westbury, Long Island, New York**

Immediate Shade For Your Lawn

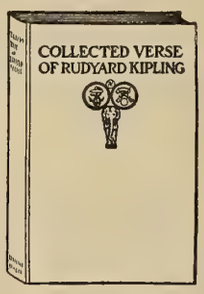
Would you like to have one or more good shade trees planted upon your lawn immediately, so you may enjoy plenty of shade this summer?

Our years of experience have taught us how to move shade trees successfully during the summer months, so if you have neglected to plant trees to provide shade this summer, let us do it for you now.

Whether you live in Chicago, Washington or Boston, or in the cities between, we can supply and plant trees for you of any size, and at moderate cost, as we are the largest and most successful tree movers in the United States.

Write us and let us tell you how we do our work and ***guarantee*** *it*

LEWIS & VALENTINE
Landscape Contractors and Nurserymen
Roslyn, L. I., N. Y.



Limp Leather Edition of

Collected Verse *Of* Rudyard Kipling

IT IS safe to say that the best verse Mr. Kipling has written is in this volume, because he has selected for this edition the poetical works by which he wishes to be represented.

Included are the favorites from "Service Songs," the "Barrack Room Ballads," etc.

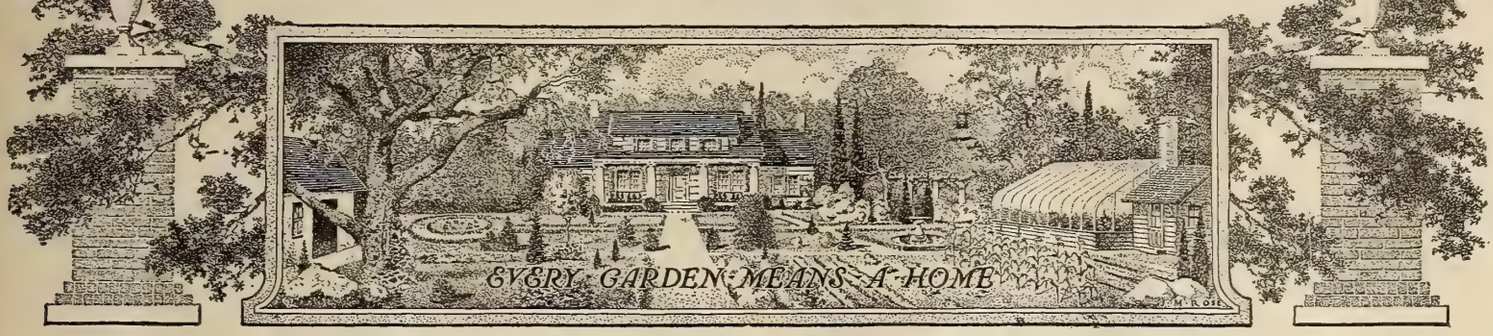
The present edition is bound artistically in limp brown leather and boxed.

Net $2.50

DOUBLEDAY, PAGE & COMPANY
Garden City **New York**

The Garden Magazine

VOLUME XXIII JULY, 1916 NUMBER 6



THOUGH not to be recommended as a general practice, still transplanting in midsummer may often be done successfully. This applies equally to small shrubs, herbaceous plants and even large trees, both deciduous and evergreen. It may come as a startling revelation to readers who have been accustomed to quietly accept the ordinary routine practice as an inviolable law. The gardener of intelligence who looks ever so slightly below the surface appearance quickly realizes that there are, indeed, very few things in gardening that are absolute and unchangeable. Gardening is full of surprises. The unexpected is constantly happening, which to many of us is one of the great fascinations of the gentle art.

More and more we are coming to realize the supreme importance of an adequate water supply. Obviously the reason why a plant suffers from the shock of removal from one site to another is the resultant disturbance of the supply of water to the leaves and other exposed portions. All the water that passes out into the air must be gathered from the soil by means of the roots and any injury to them is at once made manifest in the reduced supply of water to the parts above mentioned. The mere act of moving a plant is nothing in itself; the only question involved is how it is done. If the growing plant is lifted with all its root system intact and no breakage or disturbance of its intimate relationship with the soil, it is, we take it, quite clear that the plant as a whole never knows it has been moved—unless the environment be radically changed as from swamp to sandy hill top. But we are not supposing any such radical treatment.

GENERALLY the act of transplanting is done with the least regard for the welfare of the plant and great consideration for the convenience of the person doing the work; which means that the amount of labor is reduced to the minimum. Now in fall or winter when growth is dormant this is not such a serious matter, especially with the average run of nursery stock and ordinary sizes. Equally so in spring transplanting the natural habit of the plant aids the operation in pushing out root growth which quickly secures a hold on the soil.

But when the unusual condition presents itself what are we to do? Can we safely move large trees and shrubs in midsummer? The answer is, "It all depends!" We have seen trees, large ones, too, up to ten inches trunk measure that were moved in July two years previously, and they had been successfully moved. They had been prepared previously by root pruning from time to time so that a large mass of small fibrous roots was contained in the ball about the base of the tree. Lindens and Maples in particular have been so treated in Mr. Hicks's nursery and garden owners everywhere could do the same thing. The precautions observed were such as would be given by any good gardener. Twenty-four hours before digging, a trench is opened almost on a line with the spread of the branches. This is filled with water and the inside ball also well watered. When actual moving takes place next day, the soil is carefully taken from all extended roots which are then carefully wrapped and watered and the tree is lifted with a large ball based on the size of the trunk—one foot of ball to each inch of trunk. The actual move is made rapidly, the tree being replanted with careful replacing and tamping of the soil. Subsequent care consists of watering and mulching liberally—a three-inch mulch is kept over the whole disturbed area for at least a year.

From the results we have seen it is clear that large sizes can be successfully handled in midsummer, that the method and not the time is the controlling factor. And let us here cite a personal experience in corroboration: Two years ago a lot of Roses (raised from cuttings) were occupying space needed for other work. It was a case of transplanting the Roses or destroying them. They were transplanted one hot day in August, and every one — lived!

ELSEWHERE in this issue is an article on the opportunities that exist in every garden for the raising of root crops for a winter supply of vegetables. Too often these late crops, which are actually "catch crops," are disregarded in the household economy, yet they may easily be turned into very real profits.

The question as to the value of resulting crops enters the minds of home gardeners more every year. Personal effort is beginning to count for something and a man's (or woman's) time should be worth just as much in the home garden as elsewhere. Often it is worth *more*, because the health gained, besides the money saved, on vegetables one need not buy, is an item worthy of consideration. But aside from that, every row of carrots, beets, and turnips is worth at least five cans of vegetables bought at the grocery store at 15 cents each.

The fact that these late root crop vegetables are grown as a by-product in rows that would otherwise develop weeds, should enhance their value in the eyes of gardeners who believe in intensive cultivation. A fifteen foot row of carrots produces 5 dozen roots. Bought during the winter in market, these are worth about 75 cents, while toward spring in competition with Southern or hotbed grown roots they are worth nearly twice that much. With the exception of salsify, all the root crops may serve the double purpose of putting variation in your own diet and providing feed for chickens and pets. On the best managed estates in the dairy districts of New York State, the larger varieties of carrots and beets are considered a most valuable feed for cows. In your own "domain," pets of the children, like goats and rabbits, will be kept in the best of condition by feeding them roots that are unfit for table use. There need be no waste in connection with these crops of "waste spaces."

THE present issue completes Vol. XXIII of THE GARDEN MAGAZINE and with it we give the Volume Index. Bound volumes are also ready, and for the convenience of subscribers we shall be glad to bind their loose numbers for which a charge of $.75 is made. For the further convenience of our readers who desire to keep future issues we have been looking about for a convenient temporary binder that would hold the several numbers without injury and yet securely. This we believe has at last been found in the Hoyt binder. This is adjustable to hold snugly from one to twenty or more copies of THE GARDEN MAGAZINE and can be supplied direct from the maker for $1.75. We shall be glad to serve you in this matter and will forward to the manufacturer any remittance and order for binders.

Cultivating an Acre to Birds—ORIN CROOKER, Illinois

BY PROVIDING ADEQUATE SHELTER AND FOOD, THOUGH BUSY STREET TRAFFIC IS JUST ACROSS THE FENCE, YOU CAN SUCCESSFULLY MAKE A BIRD HARBOR IN MOST UNLIKELY SURROUNDINGS

WILL you believe me when I say that it is possible to attract birds in such numbers to a city lot that between two and three hundred of them will make their homes, rear their young and spend the summer season on an acre of ground in a thickly settled residence district? Probably not. You will think I am stretching the truth. Yet this is what one bird lover succeeded in doing in a Chicago suburb. Perhaps you could do the same if you gave the same thought and effort to this end. But you would have to be an ardent lover of birds to accomplish it, since these little creatures appear to recognize instinctively an atmosphere which is friendly to their presence.

School children of St. Paul, Minn., made and exhibited last winter 4700 bird houses, a very few of which are shown here. Visitors purchased 4250 during the week of the show; the rest were distributed by the city throughout its park system

It was no easy, one-year matter to accomplish the results spoken of above. Eight seasons of painstaking effort were needed, together with a considerable expenditure of money. Yet when it is remembered that on the start the bit of land in question was almost devoid of trees and shrubs the results—even in eight years—have been quite remarkable. Under more favorable circumstances it might be possible to achieve the same ends more quickly. At any rate the experience of this city bird lover holds much in the way of suggestion and profit for all who are so situated that they can cultivate the intimacies of feathered life. Let no one be discouraged simply because one's home is hemmed in by well developed suburban property. The acre of land which became a bird refuge is less than a dozen miles from the Chicago city hall and is within a stone's throw of elaborate and pretentious homes. It is located upon one of the main arteries of automobile traffic in and out of the city. On pleasant Sunday afternoons as high as seventeen hundred motor vehicles pass this place within an hour. The noise from this traffic becomes at times quite annoying to people living in the neighborhood but the birds appear not to mind it in the least. There is a reason for this—as we will see.

Above a wren bungalow, with suet basket below, which provides food for the birds in the garden of Charles E. White, Kenilworth, Ill.

Food, shelter and protection, free homes and building sites, water for drinking and bathing purposes—these have been the lures with which the birds have been attracted to this spot season after season. Because all these have been found in abundance on this acre of ground many of these creatures return year after year to this favored spot. How is it known, you ask, that the same birds re-visit the place? Simple enough. Many of them have been trapped from time to time and aluminum bands placed upon their legs by which they can be easily identified. Blue birds, wrens and purple martins have returned with the greatest persistence owing perhaps to their semi-domesticated natures. The latter winter in far distant South America, Cuba and the Isle of Pines. Early April finds about 200 of them swooping down upon the several colony houses maintained for them in this Chicago suburb. A large number of them each year bear the leg bands which indicate a previous visit.

Eight years ago a beginning was made upon this acre of land by setting out a perfect riot of shrubs and small trees. The idea pursued was that of making a thick sheltering barrier around the three sides of the lot which were unprotected by the house. A brick wall on one side, a high fence at the rear and an artistic but tight wire fencing in front gave further protection and seclusion from stray dogs and marauding urchins. Prowling cats and English sparrows—both of them pronounced enemies to native song birds—have been taken care of in all these years by specially designed traps. Neighbors whose pet felines mysteriously disappeared soon learned the wisdom of asking no questions. "Dead cats make good fertilizer when planted at the foot of a grape vine," was about all the satisfaction they received. With each succeeding year the shrubs have grown thicker and denser and have produced a variety of ripened seeds and berries to serve as food for the birds. The cats have been reduced to a minimum and the English sparrows kept fairly well down toward the vanishing point. In this way the two items of shelter and protection—and in a measure that of food—have been provided.

In the matter of free homes and building sites the provisions made have been both ample and unique. Some birds will build in man-made houses; others will not. For such as will, every possible means has been utilized to meet their particular wishes and likes in the way of home surroundings. Little boxes for wrens, chickadees and nuthatches—with the entrances so small that other birds cannot enter—have been put up in tempting locations. Blue birds—and wrens as well—have been enticed by specially prepared compartment houses. Neither of these birds, it is stated, will raise a second brood in the same nest. Wrens

Three tier feeding tray near the summer porch of the house from which many different kinds of birds are seen feeding

These two views are taken in the "acre cultivated to birds" and show that garden values have not been sacrificed in attracting the birds. Just across the shrubs shown on the right is the much traveled public street. The drinking fountain is a great favorite with the birds

raise two broods each year; blue birds two and often three. If a single compartment house is provided either wrens or blue birds will desert it in midsummer in search of a home for their second brood. For these particular birds compartment houses are provided so that they can move from one part to another as the needs of the hour demand.

For flickers and woodpeckers houses with larger entrances and designed to offer the same seclusion as a hole in a telegraph pole have been prepared and fastened in attractive spots. For birds which will not occupy a house but which are not averse to a few improvements which make nest building easy little shelter shelves have been provided. These consist of a shelf upon which the nest can be constructed. A projecting roof offers a sense of security which some birds seem to appreciate—probably in the same way that a robin likes to build a nest now and then up under the shelter of a porch. These shelter shelves have been placed here and there about the place to good effect. Most of them are occupied by catbirds, robins and brown thrashers. All told some forty houses and shelter shelves together with the colony houses for the martins have provided homes for a large number of birds. And in addition to those which have nested on the place innumerable other birds, attracted by the food and water, have set up housekeeping nearby.

For feeding the birds several means have been employed. Little shelters which are both rain and snow proof are scattered here and there among the trees. In these are hemp and other seeds together with meat scraps and bread crumbs. In other places little covered feeding tables—made to swing with the wind like a weather vane—also provide a place out of the wind where a bird may feed in comfort in any weather. In still other spots shelves have been placed which hold suet, meat scraps or seeds as the case may be. No feathered creature need go hungry once he finds his way to

Different species of birds take naturally to different styles of house, and there is plenty of room for individual fancy in their design

this spot. All of which—when added to the sense of security enjoyed—accounts no doubt for the fact that no attention is paid to the noisy traffic which passes a few feet on the other side of the protecting shrubbery.

One other thing has helped to interest the birds in this spot full as much as anything mentioned. This has been the presence of plenty of clean fresh drinking water and numerous baths for their comfort. It has been not unusual to see fifteen or twenty birds at one time on or around these baths. At such times they appear to respect each other's rights. One after another they will take their turn in the "plunge" which is a shallow saucer-like affair made of cement. The others wait patiently upon the edge of the pool until it comes their turn.

In view of all the comforts and the protection offered them it is not strange, perhaps, that this little sheltered bird paradise is so crowded as to almost need a "waiting list." Last season in addition to the colony of more than 200 martins there were four pairs of blue birds, five pairs of wrens, one pair of great crested flycatchers, and two pairs of flickers nesting in the bird houses. Beside these there were three pairs of robins, two pairs of catbirds, two pairs of brown thrashers, and a pair of phoebes using the shelter shelves for the placement of their nests. Besides all these there were many other housekeeping pairs either in the shrubbery on the place or in nearby trees. Most of them, no doubt, had been attracted by the bird comforts provided at this point. Among these latter were scarlet tanagers, blue jays—which because of their piratical habits fall into the class of uninvited guests—gold finches, crow blackbirds, white bellied swallows, Baltimore orioles, and several varieties of warblers.

The English Sparrow

JUST the other day, as I looked over the May copy of *Country Life*, I read Mr. Whipple's appeal to find some good point, or something kindly or heroic about the English sparrow. And this morning as I hurried to the train for town I heard the chatter of sparrows and blue birds in front of my house.

On my return a few minutes ago I found the four eggs of the blue birds, broken, on the ground under the nest, the young in them nearly old enough to hatch; and a pair of sparrows in possession of the nest.

No! I did not see them do it. But there is no cat, nor red squirrel, nor (I regret to say) small boy. Every year the same story; only by greatest care with the shot gun do I ever see my young blue birds grow up.

Is there anything kindly or heroic in it? Are we to accept it as a general sign of the times that it is time for the race of blue bird to pass out, and that in bird land, too, we are to revert to brute force?

Ohio S. Prentiss Baldwin.

Improved Long Orange carrot is an ideal winter variety

For general all-round use Chantenay is the best type of carrot

Beet Crosby's Egyptian is good for a succession crop

Start Root Crops for Winter Supply

ADOLPH KRUHM, New York

A PROFITABLE BY-PRODUCT OF THE WELL MANAGED KITCHEN GARDEN—HOW TO WORK THEM INTO YOUR PROGRAMME—THE MOST PROFITABLE SORTS OF THE POPULAR CLASSES

[EDITOR'S NOTE:—*This is a continuation of the "Which and Why" series of this author. The possibility of raising crops for winter consumption is too often lost sight of in otherwise efficient gardens.*]

IN COMPARING kitchen gardening as practised in the "old country" with the average home garden on this side of the Atlantic, even the casual observer is impressed with the preponderence of such vegetables as carrots, beets, turnips, etc., in European gardens and the neglect of these crops in ours. Of course, there are weighty reasons for this. A large percentage of our leading vegetables are practically unknown to the majority of European planters. Their seasons are shorter and they have to start early to make provision for the long winter months that do not bring them the quantities of fresh vegetables which we get from the sunny South.

Still, the possibilities of keeping down the high cost of living during the winter with the help of carefully stored root crops will appeal to some of our planters. Others will learn to consider them an important factor in the efficient management of the garden. The health of all classes of gardeners will be benefited greatly by having more of these crops form part of the daily menu throughout the year. And all this may be accomplished by doing a little planning whereby the waste spaces will be utilized the latter part of the season to produce crops other than weeds.

THE IMPORTANT CROP

The most important root crops for use during the winter are beets, carrots, parsnips, salsify, turnips and rutabagas. Of these, beets, carrots and turnips are short season crops which will mature before frost even if planted after July first. Parsnips, salsify and rutabagas require all season to reach practical size and therefore are be considered separately.

Beets are of such importance even for the *early* home garden that they have been discussed at length in THE GARDEN MAGAZINE of April, 1913. Let, it suffice, therefore, when I state that the variety generally grown for winter use is Long Smooth Blood. Fully developed roots of it grow 8 to 10 inches long by 2 inches in diameter at the crown. They are of firm texture, of deep, black-red color and keep splendidly. But Long Smooth Blood requires all season to mature and should be planted early in May to reach good size before frost. Where a winter supply of beets appears desirable as crop rotation after June 1st, some of the rows that yield early lettuce, radishes or onions may be sown to either Crosby's Egyptian or Detroit Dark Red. Splendid crops of these two kinds for winter use have been raised from seeds sown even *after* July 1st, with the help of irrigation and frequent cultivation.

Carrots. Few root crops are of greater usefulness than carrots. Due to the fact that among them we find early, midseason and late varieties, they may be had from early in July (when they form part of the delicious dish of "carrots and peas") until the spring of the following year when the last of the stored supply may be utilized in stews and soups. Carrots may be made to become one of the best paying crops in the home garden. The earliest sorts are ready at the same time as the earliest peas from seeds sown middle of April. The most important of these are French Forcing and Scarlet Horn. They may be grown between rows of other, later maturing vegetables, thus utilizing otherwise waste space. These extra early, small rooted sorts need little "thinning" and cultivation.

For a main crop, sowings should be made about May 1st of either Chantenay or Danvers. Both these will reach good size in 75 days from date of planting. For a winter supply, sow Improved Long Orange at the same time *or* make repeated sowings of either Danvers or Hutchinson—a very fine new sort of the Danvers type—not later than July 1st. The seedlings of all these larger sorts should be thinned out to stand 4 inches apart in the row, with a space of 18 inches to 2 feet between the rows.

Turnips. You may have turnips in 60 days from date of sowing seeds if you plant the early Milan varieties. We are obliged to the French gardeners for the knowledge that spinach and turnip seeds may be sown into one row at the same planting. The spinach comes on first. By the time it is ready for pulling, the turnip seedlings are just large enough to be "thinned out." Both Purple Top White Globe and Purple Top Strap Leaf may be harvested in July from seeds sown late in April and the space that becomes available then may be devoted to early bush beans for a late crop.

The main sowing of turnips for winter use is made late in June or early in July. They form an ideal succession for such crops as lettuce, radish, spinach, peas and other early vegetables, the rows of which have outlived their usefulness by then. They may also be sown among the rows of Golden Bantam corn which, just about the same time, receives the last cultivation. But by far the best results are secured with this crop if seeds are sown in rows, seedlings thinned out to stand four inches apart in the row and cultivated every time you hoe other crops around it.

Parsnips should be sown quite early, since they require a long season to grow to good size; and don't attempt to grow them unless you have deep, rich soil, free from stones or hard subsoil. Where conditions are right, this delicious vegetable will grow eight to twelve inches long, and 2 to $2\frac{1}{2}$ inches in diameter at the crown, between April 15th and frost. You need not dig parsnips in fall unless you want to. Frost improves their quality and they may be left all winter where they grew or they can be dug and stored in the cellar to be within easy reach when wanted. Hollow Crown is the sort generally grown, though in recent years, Offenham Market, an English variety, has made many friends. This is a half long sort, top-shaped, gener-

ally smoother than Hollow Crown, and more easily harvested, since it grows partly out of the ground.

Rutabagas or Swedish Turnips require a much longer season than ordinary turnips to reach full size. But they grow much larger, are of firmer texture and keep much better, while their table qualities are just as good as those of the smaller earlier turnips.

Among the rutabagas, we find yellow-fleshed and white-fleshed sorts. Since the color of the flesh does not affect its quality in any way, the selection of one sort or another is a matter of personal preference. American Purple Top is, perhaps, the most widely used yellow-fleshed sort of to-day, while Sweet German or White Russian is considered by many the best white-fleshed.

Salsify or Oyster Plant is the least popular of all these desirable root crops. Grown in the same manner as parsnips, it develops long slender roots which are perfectly hardy and may be left in the ground all winter or dug and stored like parsnips. When cooked, the roots develop a flavor which somewhat resembles oysters—hence the name. But, unless you are fond of this vegetable, don't grow it, for its usefulness is much more limited than that of any other crop in this class.

HARVESTING AND STORING

Parsnips and salsify need not be dug but may remain in the open ground all winter, since frost will improve rather than injure their quality. Some protection remains to be provided which will make access to these roots easy after the ground freezes hard. I generally heap a lot of dry leaves on the rows and put up boards on both sides to prevent the wind from blowing the leaves away. When severe cold weather is scheduled to appear, I use old pieces of matting or old burlap bags to cover the boards. Protected in this fashion, the ground never freezes so hard but that the roots can be dug when wanted.

Beets and carrots should be pulled after the first light frosts have nipped the foliage. Pull them on a dry, sunny day and let them dry outdoors, until the soil crumbles off. This only requires a few hours of Indian Summer weather. Then take the roots into the cellar or a frost proof shed or barn, if you have access to one, and store them in boxes with sand or dry soil. Put an inch layer of soil in the bottom of the box, then put in a layer of roots; sprinkle some sand or soil over this layer of roots and pile some more roots in and so on.

Roots should, as far as possible, not come in contact with each other, but rather be isolated by surrounding sand or soil. Do not store roots that are spotted or have marks of any kind of disease.

Turnips and rutabagas need not be harvested until it gets quite cold and all chances for making further growth are past. They really grow until the ground freezes, when they should be pulled, cleaned and stored in a cold corner in the cellar. Being of much firmer texture than any of the other root crops described, they keep much better with less care. But in their case also, attention should be paid that no diseased roots are stored, or a few bad ones may undo all your work if given a long enough chance in which to spoil the rest of the crop. All that has been said about turnips and rutabagas is applicable to winter radishes as well.

Solving Puzzles in Peas

To the Editor of The Garden Magazine:

THE article in your April issue is full of interesting information and practical value to all who appreciate the part played by peas in the horticultural world. It constitutes a record of facts which could only have been brought together by a series of exhaustive experiments.

One question arises, however, which we would crave your permission to bring forward, and this is in reference to the illustration on page 162, showing three peas, and naming them from left to right: Quite Content, Royal Salute and Potlatch.

We were surprised to see Quite Content illustrated as the smallest podded variety of these three. We introduced it as the largest podded pea in cultivation, and it has remained so according to our experience and tests. We can only conclude that the three peas in the illustration referred to should be taken from *right to left*, which would give Quite Content its rightful position as the largest podded pea. The article is so important that it will be filed for future reference by many readers, and we ask if this illustration is correct. [Your surmise is correct, as indeed is clearly evident by a reference to the tabulated descriptions at the bottom of page 163. Ed].

We would also refer to one more important factor affecting the pea crop, viz: difference in the soils.

We note that Telephone is classified as a negligible and superfluous variety side by side with such as Admiral Dewey, Alderman, etc. Speaking from the experience of many years, and watching these peas in Europe as well as in America, we have established the undoubted fact, beyond any question, that the Telephone pea is *better suited to light soils* than any of the other varieties of similar habit and growth which you mention, and that the other peas, although as large in the pod, would not do as well under the same conditions. Therefore to put Telephone on one side as superfluous would mean depriving every pea grower whose soil is light, of the great advantage which Telephone affords him over other varieties.

Experience has established the fact that varieties bearing dark green pods do not thrive so well on light soils as paler podded varieties, of which the Telephone is a conspicuous example.

London, Eng. James Carter & Co.

—Quite Content is the largest podded pea in the whole country that I have tried. All the trials underlying my statements were conducted in clay soil. I am, therefore, not prepared to state whether Telephone does better in light soil than it does in heavier soil. I wonder if Carter & Co. are familiar with the fact that we in America recognize two distinct types of Telephone? We have the dark podded, the best type of which is the Alderman; and we have the light podded, the best type of which is Duke of Albany. The tendency in many parts of the country is to secure the darkest Telephone that can be had, because of the superior appearance of the product after it has been displayed on the market bench for some time. The light podded type will turn yellow, while the dark podded will retain its appearance for 48 hours at least—Adolph Kruhm.

Practical Plans for the Home Grounds — RUTH DEAN, Landscape Architect

XII. Appropriate Planting for Formal Pools

AN OLD gardener used to explain to me his aversion for Ferns and Lilies around the foundation of a house, by saying—"Oh, but you cannot plant such damp tings dere. Dey make you tink always of vet feed." And when you stop to consider it, they do make you think of wet feet. Around a pool, however, or along a stream it is just exactly these reminders of marshy places that we want, especially if the pool be naturalistic. With a formal pool or fountain, one may take more liberties in the way of planting than with a pool which is trying to simulate Nature. The former is usually in the midst of a garden, and because the garden is the first consideration, Phlox, Petunias and Hollyhocks near the water, are not the incongruities they would be in a woodsy garden.

In planting even the architectural pool, however, it is best to try to recall something of the feeling which belongs to watersides. Iris and grasses will contribute to this atmosphere, so will the little Forget-me-not of streams and the brilliant Cardinal Flower, with tall Marshmallows, purple Ironweed, and rosy Joe-Pye-Weed as background flowers. It is surprising how at home these plants are in the garden proper, among their

Good border planting for a pool with just enough Lily pads on the water's surface. The columns at back materially help the picture. (Samuel Knopf, Cedarhurst, L. I.)

Around even a formal pool one should plant such reminders of marshy places as Iris and Grasses. (James Parmelee, Washington, D. C., Chas. A. Platt, designer)

more cultivated companions, and how much of real charm, a charm which is due to their appropriateness, they lend to the water near which they grow.

If the pool is to have a friendly, intimate feeling, the planting should extend in places to the water's edge. Nothing is colder and less inviting than the stone-rimmed pool set in the midst of gravel. It has a harsh ungracious look, that just a few leaves bending over the edge would mitigate, or a stray vine soften. On the other hand it is bad to surround a pool entirely with flowers and shrubs so as to make it inaccessible. Places for planting near the border should be incorporated in the design in some such way as that shown on the accompanying plan which provides walks to the water's edge and intervals two feet wide between for Iris or Ferns or Grasses.

Suggested planting for a formal pool in which walks at intervals approach clear to the water's edge

Planting for the surface of the water has its difficulties as well, not the least of which is scale. More often than not pools too small to warrant such huge leaves are planted with Lotus, or tall Cat-tails, or both, when their size really demands the smallest of the Nymphaeas and the fine leaves of Spike Rush or Scirpus Tabernae. Most aquatics grow rapidly and unless they are constantly thinned out they cover the entire water surface and leave no mirror to reflect bending purple Flags, and white clouds. With a little taste and care in thinning—the groups of Lily pads and Grasses remaining, may be made into compositions interesting and pleasing in themselves.

The aquatics in the average pool, should consist of hardy varieties which may be bedded in the pool bottom itself, rather than the tender sorts which are usually for convenience sake, planted in pots. The pots are too apt to show through the water, and introduce an artificial quality which detracts from the grace of the pool.

Fitness, which is only a synonym for appropriateness depends, in pool planting as in all other kinds, upon attention to details which will emphasize the character of the area to be planted, details which will contribute to the effect we wish to produce. In a rock garden we plant alpines, plants which naturally make their homes in the scant pockets of earth between rocks, and if the stones are not large, we use the smaller flowering and smaller foliaged plants, reserving those with coarse leaves and large flowers for the garden which can boast boulders. Similarly, about a pool, however formal its character, those things should grow which emphasize the feeling of water, and if the pool is a large one, the flowers and shrubs may be correspondingly big, whereas, if it is small, they must not reduce its size still more, by too great contrast.

How One City Improved Its Gardens

ROLAND B. WOODWARD, Secretary Rochester Chamber of Commerce

SOME OF THE PRIZE WINNING GARDENS IN THE BEAUTIFICATION CAMPAIGN OF ROCHESTER, N. Y.

LAST year the City of Rochester, New York, conducted a very successful beautification campaign, the story of which may help other centres in concerted effort. The people of that city prefer to speak of it as a campaign for *further* beautification; the distinction being based upon the well known fact that this city of 250,000 souls was already one of the best gardened in the land before the campaign was introduced. For years it has been widely known as "The Flower City." Rochester, however, is blessed with more than the ordinary share of the popular American spirit of unrest and initiative. Recognizing the danger of community complacency, its Chamber of Commerce made capital of this spirit to spur its citizens on to greater civic effort and to encourage them to exercise even more care in beautifying their home surroundings.

This is a second view of the prize winning garden, District 3, Class B, shown on page 337, and illustrates the effective use of wavy lines on a marginal border planting where there is ample space. The background of trees, fronted by shrubs and lower growing perennials, is effective and well done

An excellent selection of permanent shrubs well planted in front of the house—and which affects the dominant view of the street—determined the award of the prize here. District 6, Class A

The campaign became popular as soon as launched. To encourage participation the Flower City Committee of the Chamber of Commerce introduced the competitive element. The committee realized that it would be manifestly unfair for the cottager to be thrown into competition with the property owner on East Avenue, for instance, which is one of the most beautiful residential streets in the United States. Accordingly, the city was divided into ten districts, the classes of homes determining the boundaries. Even then a disparity was apparent in the chances for winning a prize of the cottage on the small lot and the comparatively large house occupying a good sized lot. So the contestants in each district were sub-divided into two classes; A, the owners of lots with a frontage less than fifty feet; and B, the owners of lots with a frontage more than fifty feet. In the business district the two classes consisted of buildings and individual displays such as an office tenant. A prize was offered in each class in each district. No one was barred. A flagman on duty at one of the dangerous railroad crossings entered the plot around his shanty. Those wishing to compete for the prizes were required to send in their names in writing to the Chamber. If it had been otherwise, the committee would have been confronted with the herculean and impossible task of judging every one of Rochester's homes before prizes could justly be awarded. The card used for recording the names of contestants who entered was a simple 3x5 index card.

> The City was divided into ten districts according to the class of home predominating and in each district two classes
>
> A with a frontage 50 feet or less
> B " " " over 50 feet

A number of entrants were largely ignorant of the fundamental gardening principles involved. At the same time it was of the utmost importance that those we wished to reach be given the necessary information, so a sub-committee of seedsmen, florists and landscape architects prepared a handbook of gardening information. It contained lists of popular annuals, hardy herbaceous perennials and shrubs and other information and directions to enable the average householder to make an intelligent choice and employ the best known methods in caring for his garden after it

This is typical of the flower gardens one finds in the smaller towns of Germany. The formal beds which border the long narrow lot are crowded with bloom. Every inch utilized. The basin containing gold fish and aquatic plants is an unusual feature. District 7, Class A

A typical old-fashioned garden with its trumpet vine and long middle walk bordered on one side with flowers and on the other with lawn and its considerable vegetable garden at back. District 9, Class B

The backyard outlined with flower borders in which there is much perennial plantingand a row of Iris on the south. Wavy lines are given to the beds at the back; straight lines in so short a space would seem more natural. District 2, Class A

Though without striking character the planting on this corner lot shows creditable restraint. Privet hedges on the other sides are not necessary on the street terraces, where they would have seemed very much in the air. District 3, Class A

Special features of interest are interesting grading, attractive borders, and the planting around the back of the house. (This planting consists of mixed shrubbery and is of permanent character, yet does not dwarf the house.) District 2, Class B

was planted. The book also contained illustrations of effective garden and shrubbery arrangements.

Once interest was aroused it was sustained by community rallies in public schools, effective publicity and personal work by teams. Of these there was one in each district. It was comprised of influential and interested residents who worked under the captaincy of a member of the Chamber committee. These teams encouraged street competition which proved very effective. On many streets it was the residents' aim to equal or excel the most attractive yard in the neighborhood. The teams also worked to get the people to attend the rallies which were addressed by horticulturists, landscape architects and prominent citizens. At one rally there was an attendance of approximately 1,000 residents of the section. This is typical of the city wide interest in the campaign.

The results of this interesting campaign were contained in a report presented by Mr. Charles Mulford Robinson, city planner, on behalf of his associates on the Judges' committee and from which extracts are made herewith.

The mere statement of names of the prize winners is supplemented by a brief criticism of each of the successful gardens which were judged without regard to their ownership.

"In submitting the list, the judges beg also to offer some general observations.

"They are impressed by the success of

This garden presents a very attractive picture. The setting of the house is good, grading good in front and arrangement of trees satisfactory. The steps in the walk are an interesting feature. But more permanent planting is needed. District 1, Class B

A new house with the garden only just begun. Owes its success to good intentions rather than to striking achievement. District 5, Class B

A fine display of flowers though mostly annuals. The weakest feature of this garden is a lack of planting against the house. District 7, Class B

Supplements extreme neatness with some very attractive planting. This is an interesting garden to the suburban home maker for the suggestion it contains of distributing the mass effects on the area. District 6, Class B

The excellence of the porch boxes is to be highly commended. The weakest feature in this garden is some spottiness in the placing of the plants, which is clearly seen in the photograph. District 8, Class B

the competition, for not only have the entrants numbered between two and three hundred, but the competing gardens are scattered over every portion of the city. There is hardly a neighborhood that has not at least one, which not only is attractive in itself but is spreading its influence far.

"The judges were also greatly impressed by the large number of beautiful gardens which were not entered in the competition. They would emphasize the fact that the prize winning garden in any district is not necessarily, or even often, the most beautiful garden in its district. The points on which the gardens have been judged are as follows:

(1). Proportion of property included. (2). Design: a. Appropriateness, b. Merit. (3). Choice of Plants: a. Permanent, b. Temporary. (4). Color Harmony. (5). General Maintenance. (6). Attention to Detail (Weeds, Borders, Etc.)

No garden was considered as eligible for a prize if the front portion, visible from the street, was not of such merit as to contribute to the beauty of the street.

"No garden was considered in the prize-winning group which did not present an aspect of neatness and care.

"Even among prize-winning gardens the judges have been obliged more than once to comment on carelessness in regard to color harmony. Combinations of red Geraniums and Petunias, and of Salvia and Petunias, are predestined to have unpleasant color effects."

This was the most extensive garden entered in the competition. Well designed, well kept and containing much interesting plant material, it is a garden of repose and dignity. The tree masses are well balanced. District 3, Class B

Notable especially for the attractiveness of the back garden, its domesticity, restfulness and evident use. These qualities will appeal to any observer and compel attention even though the color values be weak. District 8, Class A

Impresses one by the apparent love of gardening. Overcrowded but the main criticism was disregard for color harmony. District 1, Class A

A carefully kept lawn backed by border planting offers a pleasing picture Under the shade of two trees is a secluded living room. District 4, Class B

THE MONTH'S REMINDER

JULY, 1916

For reckoning dates, the latitude of New York City is generally taken as a standard. In applying the directions to other localities, allow six days' difference for every hundred miles of latitude

HOW are you going to celebrate the glorious Fourth which has returned again? Here's one suggestion. Take an hour or two of your holiday—before the picnic party is ready to start, or after you get back—and make a survey of your garden. Late July is often the Waterloo of the inexperienced and of the half-hearted gardener. It would be a waste of time to attempt assistance to the latter. But the former often gets into hopeless difficulty before he realizes it by a temporary let-things-drift policy about this time of the year, whereas a word or two of suggestion, properly interpreted, may save him a deal of trouble.

July usually shows the turn of the tide of battle in the garden. So make an unusual effort to get a little ahead of your work. If you do not seem to be keeping up, make an early and a really serious effort to hire some one for a day or a half day, or even an hour a day, to help you out. If in spite of all you find that you have unfortunately undertaken more than you can carry through, don't make the fatal mistake of trying to half-care for all of it. Drop the least important things altogether, charging it up to experience, and take good care of the rest. Remember that fifteen minutes will take care of the weeds in a large part of your garden—if you use a scythe and sacrifice the crops. That is far better than weeks of work and worry, and crops that amount to nothing after all. You will find the hardest thing about it bringing yourself to acknowledge *in time* that you have, to use a colloquialism, "bitten off more than you can chew," and that only quick and definite action can save something out of the wreck.

This Month's Big Job: Pruning

MANY of the ornamental shrubs, fruit trees, small fruits, and all trained plants, depend in great part for their beauty or utility as the case may be, upon intelligent and careful pruning. Midsummer is one of the seasons of the year when there is much of this work to be done. Before mentioning any particular plants, however, it may be well to say a word about pruning and pruning methods in general. Summer pruning is for three distinct purposes: to train plants to shape, as is the case with dwarf and trained fruits, trained ornamentals, and hedges; to prevent undesirable growth, as in removing bud or sprouts from fruit trees, grape-vines, etc., and to keep in condition all flowering shrubs which will form buds *this* season for next season's bloom. Many people, who will cheerfully prune anything which is dormant, seem to have a superstitious fear of cutting a plant in active growth, as though it would be likely to bleed to death. With a few exceptions, such as the grape vine, there is very little danger from this source, except in the very severe pruning occasionally required for some long neglected plant or tree.

Tools for Pruning

BOTH for convenience, and for the quality of the work, the tools used for pruning, knife, pruning shears or saw, as the case may be, should be clean and sharp. There are many good pruning implements now made at very reasonable prices, and as with ordinarily good care they will last for years, there is little excuse for poor pruning tools. But there is one implement still often used which the inexperienced should be cautioned against: that is the double-edged pruning saw. Don't allow one on your place. If you are purchasing a new pair of shears, don't hesitate to invest fifty cents or a dollar more than the cheaper grade costs, and get one of first class material. A cheap pair will not do good work, and will quickly become next to useless, if they do not break.

How to Prune

IN TRAINING plants to shape the pruning to be done is mostly of the type known as "heading in," that is the cutting back of lateral or of upright branches in order to produce the general plant form which is desired. In doing this it should be kept in mind that the bud or eye next to the cut will be the one most likely to throw out the strongest growth, or "leader" to take the place of the wood which has been removed. At the same time, all the growth below the cut is stimulated, as the new leader is not immediately able to take care of the flow of sap which had been going to the growth which was cut off. For this reason, it is essential in making the cut to consider the position of the bud left just below the cut, and the direction the new shoot will take. Wherever an open centre is wanted, this bud should be left on the *outside*. If there is a "hole" in the shape of the tree or plant to be filled, it may be necessary to branch into it from two or three directions: or one may have to plan several "moves" ahead, as in playing checkers, in order to obtain the desired result in the end. Another point is to prune the growing wood while it is still young: to guide it in its growth, as it were, rather than to cut it to shape after it is grown. Hedges should be trimmed when the season's growth is well under way, but before it gets so large that the surface will look moth-eaten or full of holes as a result of the trimming. For formal, smooth surfaced hedges, the new fan-shaped trimmer, with a set of several knives working together, not only saves a great deal of time but does far superior work to the old style.

Pruning in the Fruit Garden

PRUNING to remove surplus growth, if attended to properly is rather more a process of disbudding than of pruning. Go over your grape vines at this time and rub off any sprouts which may have started below the "head," or along the main limbs, which you do not want. Heavily pruned apple trees will be likely to throw out numerous "water sprouts." Remove these while they are small. Occasionally there may be a new growth in such a position that it would later develop into a good limb: any such of course may be left, but they will be scarce.

The cane fruits should be pruned thoroughly after fruiting, all the old wood, that has just borne, being cut out to the ground; and only enough of the new growths to fill the rows without overcrowding. Currants and gooseberries are more easily pruned in the fall or spring, when the leaves are off; but if they have been neglected the oldest wood may be cut out to advantage now, giving the new growth more room. Any gooseberry branches which trail on the ground should be shortened back.

Which Shrubs to Prune Now

OF THE flowering shrubs, those which should be pruned now, or as soon as they are through flowering, include the following: Akebia (little pruning required); Azaleas, Ghent and mollis (remove only the old wood); Berberis (very little for informal hedges, remove only oldest growth); Bignonia; Calycanthus floridus (Strawberry shrub), Celastrus; Chionanthus (White Fringe); Cornus (Dogwood); Japan Quince; Deutzia; Forsythia; herbaceous Hydrangea (Hortensis, etc.); Jasmine; Lilac (little required); flowering Plum; flowering Currant; Rhododendron (oldest wood only); climbing Roses; Spiraea, Thunbergii and Van Houtteii; Viburnum (snowball); Weigela.

If these have been pruned regularly, very little attention will be required to keep them in shape. If they have not, and are choked up with old and dead wood, do not be afraid to cut away the biggest part of the clump.

In the Rose garden, summer pruning, which is really only a generous shortening back, will not only help to keep the plants shapely, but stimulates a second flowering.

EARLY IN THE MONTH

Keep the Bugs on the Jump

WHETHER you get time to do any more planting or not, don't fail to keep the things which you have got planted free from the various insect pests which are now busy invading every garden in the country. Look over the methods of combating them described in back numbers of THE GARDEN MAGAZINE, and see that you have on hand a full supply of everything which may be needed to fight anything which is likely to turn up. It is the first twenty-four hours after they put in an appearance which counts.

Lawn or Front Yard?

THIS is the time of year which begins to show the stuff your lawn is made of. If it doesn't seem to be holding its own, you can help it out by top-dressing it with nitrate of soda and fine bone. But remember that this is temporary treatment only, and that a real operation will be necessary as soon as the conditions are favorable, which should be next month. What you can do now is to mark the spots which seem to dry out the quickest, and not cut it quite so short as you did in the spring. Also order a supply of humus, if you have none on hand, so that it will be ready when wanted. Likewise, some of the best lawn mixture you can get, keeping in mind that the heavier such a mixture is per bushel the better, provided the weight is *not* due to an excess of white clover seed.

Speaking of lawns, if you have one that is too large to care for comfortably with a hand mower, have you investigated the new type which is steered by hand, but is operated by a small gas motor? It may prove the solution of your lawn mowing problem.

Irrigation

A WORD to the wise on water. A word to the wise is sufficient, but possibly that word hasn't reached you yet. We refer to the word *Irrigation*. Are you going to let your lawns dry up and your flower-beds languish, and your vegetable garden give a half yield again this summer because of continued dry weather? Get posted on modern methods of irrigation, described in full in THE GARDEN MAGAZINE of last month, and of July, 1915.

BEFORE THE END OF THE MONTH

Asparagus, Rhubarb and Sea Kale

THE time to give your plants of asparagus, rhubarb and sea kale plenty to eat, if you would have big and tender yields next spring, is now. They will begin active growth again, particularly below ground, as soon as there is more moisture and cooler weather. Apply well-rotted manure now, or a complete fertilizer; or both, cultivate thoroughly, and clean out all weeds. The more you can get into the roots now, the more you will get out of them next spring.

"Laying by" and Seeding Down

MANY of the best farmers nowadays seed down *in* their corn, just after the last cultivation, instead of waiting until it is cut. You can profitably employ the same method, and have a crop of red or crimson clover, or rye and vetch, ready to go through the winter and dig in in the spring. Buy the seed now, and be ready to sow down every patch of garden that would otherwise be idle from now on. This green crop is like putting money in the bank—*it adds humus*, which every soil *must* have to support growth.

Plant this Month

¶**Vegetables,** *last succession crops of* beans, beets, parsnips, carrots, etc.; corn (by July 4th), cucumber, lettuce, mustard, peas (late in the month), rutabagas.

Transplant from seed bed: Brussels sprouts, cabbage, cauliflower, lettuce, celery.

To transplant to frames later: lettuce, cauliflower.

¶**Flowers,** *for wintering over, in frames or under mulch:* Pansies, English Daisies, Campanulas, Myosotis (Forget-me-nots), Hollyhocks and other hardy biennials and perennials.

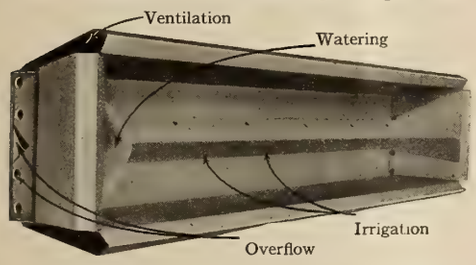
¶**All kinds of plants** now in pots, even shrubs and vines, to fill vacancies in the border.

NEW IDEAS FOR THE GARDENER

(The purpose of this Department of THE GARDEN MAGAZINE *is to take notice of new accessories or sundries that are offered to tempt the garden lover. In thus bringing before its readers' notice what the inventors and manufacturers are placing upon the market,* THE GARDEN MAGAZINE *does not necessarily endorse or recommend the general application of any tool, accessory or appliance; only time and the test of actual use can finally answer the question of their suitability for each individual.)*

Ideal Vacuum Flower Box

THIS is constructed of metal and has double walls so as to allow a ventilating air space to protect the contents of the box from excessive heat. Water can be applied at either end of the top of the box. A channel runs the entire length of the box in the centre. This system tends to keep the roots in the centre. Over-watering plants is as detrimental as not watering enough. The



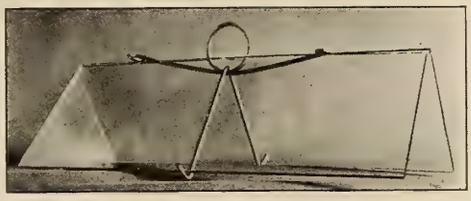
Ideal Vacuum Flower Box has a method of drainage which prevents giving the plants an over-supply. On each end of the box is a trough one inch high. Holes are punched in the end of the box inside of this trough, and all surplus water runs out. The soil becomes soggy when it has too much water and the plant becomes sick—so a layer of gravel, broken flower pots or moss is put in the bottom of the box to prevent over-watering.

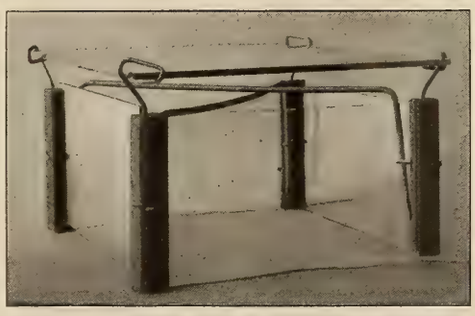
Fertilize and Spray While Watering

AN INGENIOUS scheme for combining two operations into one is developed by the Kirke System. Everybody uses a hose in his garden—that, indeed, is universally looked upon as one of the lesser evils of garden work because the dire results of an inadequate water supply are quickly noticed. This System takes advantage of the watering act to distribute fertilizer, insecticide or fungicide at the same time. A special hose nozzle, having a large, cylindrical chamber, is supplied in place of the regular hose attachment. This is the cartridge container. There are ten different cartridges which may be used in the container. The water, passing through the chamber, dissolves the contents of the cartridge which is thus distributed in solution. The various cartridges are uniform in size but each preparation has a distinguishing color.

Improved Gro-Quik Forcers

THE standard form of the Continuous Seed and Plant Forcer of the Cloche Company has been improved upon in some minor details in fitting certain types of the appliance to special purposes. The form of wire holder, affording a more convenient loop for lifting from seedling rows, is one of these, as shown in the upper one of the accompanying illustrations. This would be specially handy in tending small delicate seedlings on the greenhouse bench, for example, or anywhere else where frequent removal of the cover for examination of the seedlings was desirable. The lower cut shows what is practically a miniature glass house with wood corner posts, all firmly braced together. This is specially





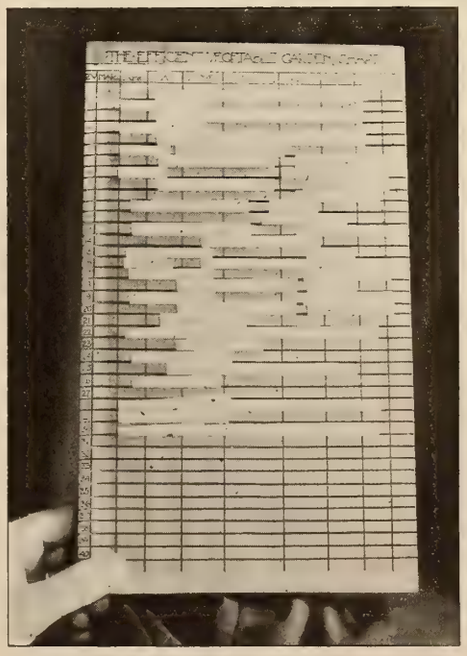
designed as a forcer or protector for alpine plants such as need shelter from the trying changes of our uncertain spring climate. Many little delicate early-flowering bulbs, for example, might be grown under such a shelter.

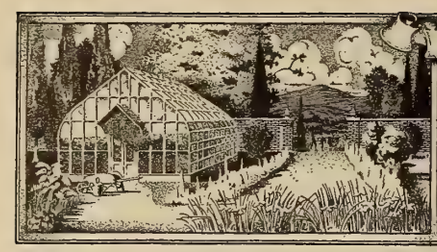
Pull-Easy Garden Cultivator

HERE is a new kind of garden rake that is actually adjustable to the width of space to be worked over! The full width, when the tool assumes the line of an ordinary garden rake, is eighteen inches; but by folding forward the two halves of the rake, which are pivoted on the handle socket, they may be contracted to seven inches spread, and to any intermediate distance. The shape of the teeth and the way they are attached to the steel side bars makes the cultivator entirely different from an ordinary rake, as the teeth penetrate the ground, stirring it up and pulverizing it thoroughly without the operator's having to exert any downward pressure on the handle. The width of the cultivator is adjusted by simply loosening two wing nuts and tightening them up again. The middle tooth can be instantly removed so that the cultivator will straddle a row of small plants and thus cultivate two rows at the same time. It has that perfect balance or "hang' which is so necessary to any tool and which enables one to use it for a long time without tiring the arms. The handle is four and a half feet long, of tough, smooth, straight-grained white ash. Teeth are of one piece cold pressed steel and are unbreakable.

Hodges' Vegetable Garden Chart

THIS is a scheme to put modern efficiency methods into the backyard vegetable garden. The chart consists of a piece of board with horizontal grooves cut at equal distances and numbered. These represent the rows in the garden. The perpendicular columns are ruled for the months of the growing season and are of width proportionate to the activities of the respective months. Card strips cut into lengths to correspond with the period of time that the crop will occupy the ground have the crops' names written upon them and are inserted along the row grooves. By this means the gardener can see at a glance just what space will be available in the garden at any given date according to the plantings then in the rows. Taken in connection with the various planting tables in THE GARDEN MAGAZINE (such as that on page 86 of the March, 1916, issue), the beginner would be better able to visualize the development of his garden plot and plow ahead for successions, the only requisite facts are to be found in various planting tables.





ODDS AND ENDS
FROM EVERYWHERE

Do Platycodons "Winter Kill?"

IN THE discussion regarding the "winter killing" of Platycodons, there has been no mention of a difficulty which I have encountered in efforts to establish these very desirable plants. Seedlings which have not been transplanted at a sufficient depth are sometimes wholly or partially thrown out of the ground by the alternate freezing and thawing of our variable winters, unless protected by a mulch and that proves fatal to the plants. I do not know that they "winter kill" in any other way, and well established plants which have made deep root growth have never been thrown out in my experience. Having lost a number of plants in this way, I now make it a rule to cover my Platycodons, especially if the plants are young or have been recently moved.

West Pittston, Pa. M. VERPLANCK.

A Pungent Suggestion

OUR four-years old maiden, who is fond of making botanizing excursions, recently brought in a quantity of pretty green moss which she had carefully collected from the top of a flat rock, and insisted that it be made to grow indoors. So we found a large, saucer-shaped dish of glass, and after lining it carefully with the moss and watering it well, it occurred to us to sprinkle it with cress seed. In two or three days we had a promising crop of salad growing, as well as an attractive centre piece for the table. When ready we cut it with scissors, a pinch at a time as we wish, and eat it with salt as a relish. By making another sowing as soon as the first one is well started, a second crop may be had; and in this way your salad may be as "perennial" as you wish. This is a far more attractive way than sowing in boxes, or upon wet flannel, as is done in England where the cress is so popular as a springtime appetizer. Besides there is the pleasing novelty of cutting every mouthful fresh and crisp from the "garden" as you sit at table! The moss must be kept well moistened, however.

Maine. CHARLOTTE BRASSEY-BRIERLEY.

Japanese Anemones

IN THE May issue Mr. Leaming asks about Japanese Anemones. They grow easily here in a rich clay loam, in semi-shade, rather moist; in a site suitable for rhododendrons, not *under* trees but near them.

They spread and increase and flourish with no attention except that they receive, like everything else on my place, a winter coat of loose manure four inches thick.

Cleveland, Ohio. S. PRENTISS BALDWIN.

No Trouble With Japanese Anemone Here!

IN THE May number of THE GARDEN MAGAZINE Edward W. Leaming wrote in regard to the growing of Japanese Anemones. I have a great many and they always grow without any trouble. The soil is a light loam, no clay, and with southern exposure, with a slope to the south of perhaps a foot and a half in the forty-foot wide enclosure, probably more for there is a deep terrace of perhaps two feet cut in the grass between fence and flower beds on the south side. They are planted in clumps of four or five feet in extent, and some would cover more than six feet. I find those getting the sun all day are inclined to wilt in the hot weather, after the buds begin to grow, and should be watered well at night. A good watering once a week is sufficient unless the weather is very hot but using the hose every day is bad for them. They should be covered well with leaves in the fall, and the ground should also be properly enriched in the fall. They blossom profusely in our garden (which is just an ordinary city garden) from the first of September till frost and snow. I have sometimes thought, as they start quite late in spring, that people forget about them and either dig them up or disturb their growth. But let the Anemones have the field and if other things encroach put them somewhere else. My experience is that spring is the best time for transplanting them.

Buffalo, N. Y. KATE M. SMITH.

Cucumber Wilt and the Striped Beetle

A STATEMENT made on page 18 of the February, 1916, GARDEN MAGAZINE credits the striped beetle with all responsibility of cucumber wilt.

Last summer I lost about 50 per cent. of all cucumber plants, and in previous seasons enough to remember the misfortune. I have invariably driven off the beetles by dusting, and last season found fewer than usual upon the plants; but destruction from some cause was never so great.

The hills were prepared about ten days before dropping seed and allowed to warm up. The seed germinated, grew, made strong vines, the fruit set in plenty, when wilt commenced. I believed it was something under ground, so dug many entire hills; and found nothing except that roots had been eaten into, in some cases clear through. I could not give the first suggestion as to the cause, but was convinced some worm or mole gnawed the root. Would the striped beetle have done this?

I never found one in all the digging and pulling up of vines. If there is any suggestion or remedy, I want to apply it this summer, and will much appreciate what your readers may say.

Frankfort, N. Y. H. E. DAY.

Wisteria Seedlings

IN THE January number of THE GARDEN MAGAZINE, I was interested to read in the Readers' Service Department of the trouble of one J. G., that his seedling Wisteria did not flower, although seven years old. I had a Wisteria seedling which bloomed when it was five years old; the picture shows it blooming at eight years.

I have heard many people complain of the failure of their Wisteria plants to bloom, and I cannot help thinking my success may have been due to the fact that the plant was transplanted four times before it was finally settled in permanent quarters. It blooms every other year most profusely and now, at fourteen years of age, is about eight or nine feet high and a perfect show at blooming time.

An eight-year old seedling Wisteria in full bloom. Transplanted four times before permanently located

It is a well known fact that root pruning is the main factor in forcing the bloom of a Wisteria. At the flower show in London, in 1914, there was a very fine Japanese exhibit, and among the plants were many Wisteria trees of different sizes in full bloom. The Japanese who was at the head of the exhibit told me that it was root pruning that made the success.

It might be worth the experiment for J. G. to transplant his tree to see if pruning the roots, as would be unavoidable in the moving, might not help the bloom.

Besides my tree, I have also several vines, seedlings of the same year; they have never failed to bloom from an early age, and they also were transplanted several times.

Long Island. S. T. H.

Trying Out New Plants

I NEVER loved a meek gazelle but that it died. Some of my dead "gazelles" are Thalictrum dipterocarpum, Aconitum Wilsoni, Artemisia lactiflora. I was reminded of this quotation after reading Mr. Wilson's "New Herbaceous Plants from China."

Concerning the best beloved of these three, Thalictrum dipterocarpum, the-Meadow-Rue-with-seeds-that-look-like-flies, two winged, I wonder if it is reliably hardy in the region of Illinois? Three times I have purchased this beautiful plant, this spring being the third. It grows for me not eight or ten feet tall as Mr. Wilson says, though doubtless it would if it could be established—but three or four. It arrays itself in midsummer with a cloud of purple flowers much larger than those of the ordinary Meadow Rues. It seems to flourish, but in the spring I look in vain for the reappearance of the dark purple, blunt spike pushing through the earth to indicate the presence of the Rue. In two seasons' trials it has failed to survive the winter although it grows very well during the summer when planted out in the spring from the nursery.

The dealer from whom I bought the plant recommended that it be planted in half shade. The Meadow Rues that I have seen growing wild and that I have grown rejoice in full sunlight, so I took a chance in planting Thalictrum dipterocarpum in full sun. I notice that Mr. Wilson says the plant revels in full sunlight. Its purple stem pushed its way vigorously, the unfolding lacy leaves being almost as delicate as those of the Allegheny vine, the purple stems reached up strongly and it was one of the most singularly beautiful perennials, it seemed to me, that I had seen in a long time even without the blossoms; and not much in the way of bloom is to be expected from a Meadow Rue as exemplified in T. aquilegiafolium and T. adiantifolium. By and by the branching flower spike climaxed the handsome foliage and the quivering purple inflorescence added new beauty to the border. It was planted near a double Gypsophila and the two made a striking picture.

I mulched it in the fall with six or seven inches of leaves. In the spring it had "up and died." Again I tried it in a half shady situation. It did not attain the vigorous proportions of the first plant and again it "up and died."

It was planted in light, rather sandy soil, which had been well manured. This year I am planting it in heavier soil, an admixture of clay being added, and in full sunlight, and I have hopes—but they are faint!

I have a suspicion, after two trials, that Aconitum Wilsoni does not like our hot, dry summers. I also am led to believe that it prefers a heavy soil. It acts much after the manner of the Japanese Anemone in the light soil in which I planted it. I have never succeeded in blooming Aconitum Wilsoni, although I have had it three feet tall with a well developed blooming spike. Then it turned yellow and died. The next spring three or four puny spikes appeared

where there had been the one vigorous spike the year before, and they died before the summer was over.

It was planted in shade and the soil was rich although light and well drained. Actaea japonica, the plumy Solomon's seal, Phlox Arendsii, and other shade loving plants flourished in this particular corner, as did the Monkshood, until the hot, dry days of September.

Artemisia lactiflora, which looks like the one respectable member of the tribe of Wormwoods (most of which are dirty looking vagrants resembling naltese cats that have been out in the rain) didn't take kindly to its location although it grew and flowered. The soil was poor. A second trial showed it to be more vigorous. I hope this year to bring the plant to its full development. It reached a height of two feet for me and when in bloom looked like a sick Astilbe. However, the foliage was good and its possibilities were apparent. In better soil and more congenial surroundings, I believe that it will do better.

An eastern seedsman was moved a few seasons ago to offer Meconopsis integrifolia with the flattering statement that it was a gorgeous yellow Oriental Poppy. I fell. I got as far as a few puny plants with strap-shaped, rough leaves which seemed startled and undecided as to their proper function and curled up and disappeared. The plants were watered and attended most assiduously, but kindness proved of no avail.

I likewise cast money to the dickey birds when I tried a couple of plants of Astilbe Arendsii. This plant must have a moist situation.

Illinois. Sherman R. Duffy.

Can Potatoes Be Grown in Swampy Land?

THE GARDEN MAGAZINE is often asked to give the reason for a failure, but I wish to ask the reason for an unexpected and unmerited success!

Last spring, being obliged to put some of my limited garden space in clover, I found, after arranging for everything, that the potatoes had been left out. As my garden is in the Adirondacks and I do not see it until June, it is necessary to settle everything from a distance. I knew my man of all work, who is not by any means a gardener, would consider the potato crop the most important; and fearing he might think it more important than Asters and Antirrhinums and encroach on their domain, I wrote boldly, "Put the potatoes in the dryest place in the swamp lot." This was taking almost an unfair advantage as he knew, and I knew and he knew that I knew there was no dry place in the swamp lot. But places in the sun are scarce in the Adirondack woods and this, at least, was sunny. It was originally a cedar swamp which had been cut many years ago and since grown up in alders. These we cut and burned quite recently to get a crop of coarse grass for bedding.

When I went up in June and saw the potato patch I felt some misgivings. The man had chosen the best place, a very slight rise along the river. Still it was unpleasantly wet. Water stood on the surface in places and the weeds between the rows were Equisetum and other swamp plants, with patches of spagnum moss near where the ground had not been disturbed. I felt that only the driest kind of a summer could save the situation. As it turned out, the summer of 1915 was almost the wettest on record. It rained at least three days in every week and when once, after a prolonged rain, I exclaimed, "the poor potatoes," the man of the house said, with crushing superiority, "What could you expect in such a place?" I did not expect much when July and August had wept themselves away, and late in September, when we prepared to dig the potatoes, I thought we would be fortunate if we got the seed back. The patch was about three-quarters of an acre and we got 120 bushels of fine, smooth skinned potatoes! Not a small or poor one in the lot! And when cooked, they proved to be extremely dry and light.

Now, what did it? The fertilizer was a very small amount of stable manure which is exposed to the weather, summer and winter, and is consequently of little value. I think I have seen somewhere that alders furnish nitrogen for the soil like clover, etc. Or probably the fact that the soil had never been cultivated may have had something to do with it. I have noticed that the people living in mountain cabins get very fine potatoes when they plant them in a fresh clearing, a hill here and there between the stumps. But I am searching for real light on this subject.

New Jersey. H. M.

Giraldi Hybrid Lilacs

WHAT beautiful things the new Giraldi hybrid Lilacs are! They come so early in the spring and help to prolong the season. On May 15, in the Rochester Parks, we had four in bloom, namely: Lamartine, Mirabeau, Berenger and Vaubau.

John Dunbar.

Rosa Gentiliana

TO OUR readers who live in the milder parts of this country, we have pleasure in introducing a new species of Rose of more than ordinary merit and of untold potential value. It hails from China and is one of E. H. Wilson's introductions, and was

Rosa Gentiliana, often erroneously named Rosa floribunda

briefly mentioned by him, and is pictured, in his eighth article, which appeared in the January, 1916, number of The Garden Magazine.

This new Rose is a strong-growing species, making tangled bunches of from twelve to fifteen feet high and from fifteen to twenty feet in diameter. The leaves are 5-foliolate, dark glossy green above and glaucous below, but when young they are reddish, more especially on the underside. The flowers are pure white, about an inch in diameter and delightfully fragrant; they are borne in broad clusters and are followed by orange-red fruits. Unlike the ordinary garden Roses, it should not be pruned.

Miss Ellen Willmott, a famous English horticulturist of international renown, in her monumental book (Genus Rosa II. 513, 1914), describes it thus: "This plant in its way is, perhaps, the most beautiful Rose yet introduced. Its cascades of pure white flowers are borne in boundless profusion, and unless damaged by storms will continue in blossom for nearly two months. It should be given an isolated position, where it can be left to develop, and where its beauty can be seen to best advantage. It forms fine bushes of dense growth, and so far has not been attacked by mildew or fly."

Our photograph is of a spray from a plant which flowered in England, and was first published in *The Gardeners' Chronicle* of London, under the erroneous name of Rosa floribunda.

[Editor]

Another Combination—Kochia and Delphinium

LAST spring I planted a mixed assortment of Delphiniums along the front and back of a row of Kochia. As the ground had been previously well enriched, the plants made rapid growth, soon attaining a height almost as great as that of the Kochia, and by May the row was a mass of light green bordered on either side by a line of darker green. It was not long after this until the spikes of delicate bloom appeared upon every side of the row and even pushed out from among the foliage of the Kochia.

This combination planting was good for two reasons—because of the spectacular effect that it produced in the garden, and because of the shade of the Kochia which helped in perfecting the bloom of the Larkspur. The row was showy throughout the summer and many flowers were produced for cuttings.

Sherman, Miss. Buford Reid.

For Mr. Duffy to Answer

ISN'T it time that Mr. Duffy wrote another article following up the one on Narcissus in September, 1914? I have grown about seventy-five varieties this year. My soil is a rich forest one, rich in humus; grows trees three feet in diameter. It seems to suit the Daffodils, as my sizes are somewhat larger than his: Emperor, 3½ inches; Glory of Leiden, 4½ inches this year, 5 inches last year. I find, also, that Glory of Leiden needs replanting every two years—in fact, I think that I shall have to do so with all of mine, as they increase so fast. The Poetaz group do finely, the only one that has given any trouble being Irene and that, no doubt, because it had been left too long. I have not fertilized the soil at all until last year, when I gave a little bone meal. But I wish to call attention to one of the triandrus hybrids—Icicle! It is a very strong grower, three flowers to a bulb and a perfectly beautiful thing. In a vase the color of the Narcissus stems, with Homespun above, is a wonder. All the new ones that I tried this year have done well. Lord Muncaster and Treserve are extra good. Poetaz Admiration will, I think, be a great acquisition. Evangeline is a great beauty also. The only one of the giants that did not get big is King Alfred—that I have only one bulb of and planted rather late. The color is fine, but the flowers were small. I will try a few more bulbs this fall.

Excelsior, Minnesota. E. W. D. Holway.

Sweet Violets from Seed

IN MY experience it is a very easy and simple matter to raise Sweet Violets. I usually send for my seeds very early in the season, before the soil is warm enough for outdoor planting, so start them in pots. I then put them where they will have the sunshine all winter, so as to get blossoms late in fall and early in spring. As it is best to protect the plants from too much sunshine in midsummer, I use a muslin-covered lath frame that can be quickly stored away when not needed. In one or two years the plants will require thinning, which is best done after blossoming in the spring. It can be done at any time, however, if the plants are shaded from the sun. The soil is a rich garden loam.

The variety I find most satisfactory is Princess of Wales, very fragrant with large blooms. The plants self sow.

Lawrence, Kansas. Mrs. H. E. Iliff.

A "Renters" Garden

LIKE most clergyman's families, we are "renters" and our home is owned by a very old lady, and may be sold at any time. But as I felt that I must have a garden, I proceeded on the assumption that I could have it undisturbed for an indefinite period. The usual solution for such a situation, a garden of annuals, was not for me, as we are away for six weeks every summer and I must have more permanent material. Add to these fundamental difficulties the fact that we have very poor, sandy soil, except for a few patches, and a great wall of Trumpet Vine usurping the moisture and the nourishment, just where all the laws of landscape planning demand a border of flowers, and *where I propose to have a border of flowers*, and you will see that the difficulties thicken. My only place for full

sunshine, moreover, was almost clear sand. What wasn't sand was ashes, and tin cans and old shoes, etc.—in short, filled land and filled in regardless of any future uses. As I couldn't change the conditions I searched through my gardening books and made a list of everything that preferred sandy soil.

I had two short borders in which the soil was good though partially shaded, and they presented a chance for more fastidious plants, Foxgloves and Columbines being the best. Last summer I raised a bed of perennial seedlings in that sand heap, had excellent Dahlias, and plenty of annuals. I confess I have not yet tackled the tin can region, but a long, low compost heap is to be there all this summer, with climbing Nasturtiums to cover it, and I will then be making new soil. And I shall plant a cover crop of rye to be turned in during the late summer.

New Hampshire. L. M. Robbins.

Raising Perennials from Seed

THERE are several popular perennials that are easily raised from fresh seed sown in the fall, which will germinate the next spring. A few are Adlumia, Monkshood, Clematis, Dodecatheon, Primulas, Violas, Peonies, Phlox, Gas-plant, Adonis. There is little use buying seed of the above and sowing it in the spring as few if any will grow. Some will appear the following spring if the seed bed is not disturbed. The seeds of most perennials germinate slowly although there are exceptions. The best plan is to sow the seed as soon as it ripens in the summer or fall, preferably in a coldframe; some, like columbine and larkspur, will germinate quickly and make blooming plants the next season, others will not germinate until spring. Phlox is a good example, and always blooms the first season.

Much disappointment and expense might be saved customers if seed concerns would furnish trustworthy information in their catalogues, advising which sorts must be ordered in the fall and holding the filling of such items until fresh seed should have been received. A few do, but the great majority probably have no way of knowing or testing results themselves.

There is one of the most beautiful of our native plants—Lithospermum hirtum—which has not been taken into the fold by any of the specialists in native plants. It is well worth a place in every garden with its large clusters of yellow flowers, something like flattened heads of forget-me-nots. The root grows deep and long and the major part of it must be secured in order to transplant it successfully. It grows from one to two feet high and is native in light, sandy soil.

Glencoe, Ills. Percy W. Armstrong.

Pin-Money Crops for the Home Gardener—F. F. ROCKWELL

VI. SALADS FOR LATE SUMMER AND FALL

MANY towns and small cities, which are abundantly supplied with lettuce and other salad vegetables in the spring, have to depend almost entirely upon produce shipped from a distance for their fall supplies of salads. The reason is that many farm gardeners who have time to grow these things in the spring are too rushed with other work during midsummer to start the fall crop, even if they have the facilities. This condition opens up an opportunity for the pin-money gardener: it is much easier for him to make a fair profit from salad vegetables grown for the fall market than to make a success of them, financially, in the spring.

In some cases these fall salads—lettuce, endive, witloof chicory (French endive), and corn salad—may be sold most profitably at retail, but as a general thing it will pay better to market them through some good local grocer with whom you are doing business. Always make a point of *quality*. This is a market which will be open to you year after year, and it will pay much better to discard a large part of your crop the first season, if it is not strictly first class, and sell only the best. But insist on a fair price. Local grown or "native" salads, which are fresh and crisp, should always command preference over those shipped from a distance, if they compare favorably with the latter in size and solidity.

THE two points on which the gardener who is growing fall salads for the first time is likely to slip up are varieties and securing a good "stand" of plants. All the crops mentioned above, except witloof chicory, may be grown where they are sown, by proper attention to thinning. But if garden space is limited at this time, as is likely to be the case, just as good results can be had by starting the plants in a seed-bed and transplanting later. In fact, if the season is dry, and irrigation is not available, it is better to start the seeds in some place where they can be watered until large enough to transplant, by which time generally rain will have become more frequent again.

For the small pin-money garden a packet, or at the most an ounce, of any variety of the several things to be planted will give a sufficient number of plants. To make sure of securing a good germination, use the following method of planting. Fork up the seed-bed, and then, before raking it, give it a thorough soaking with the hose, applying all the water the soil will absorb. If this is done late in the afternoon, it will be in ideal condition for raking smooth and planting the following morning. Unless the seed bed is within reach of the hose, so that a fine spray may be used in watering, the following further precautions, to make assurance doubly sure, will be advisable. Open up shallow trenches, two or three inches deep, and a foot or so apart, where the seed is to be planted. Fill these with water until it ceases to soak away readily, and then fill the trenches with prepared soil, half humus or fine old compost, and half light garden soil, and plant on this surface, about half an inch deep. For the small amount of seed to be planted, this extra work will take very little time, and will constitute a long step toward success. As soon as the seedlings are well up, they should be thinned to stand one to two inches apart, and if they begin to crowd before their permanent positions are ready, thin again. Good strong plants are the greatest factor of success, and fifty such are preferable to a hundred of only medium quality.

LETTUCE is in the fall, as it is in the spring, the leading salad crop. Some markets use both the head and the loose-leaved sorts in the fall, but as a general rule the former is preferred, even in localities where much of the loose-leaved sort is used in the spring. Of the heading sorts, I know of nothing superior to Big Boston for fall growth. It is not only all that could be desired in size and quality, but thrives at a low temperature and withstands frosty weather to a remarkable degree. If a loose-head sort is wanted, use Grand Rapids; but unless you are certain you will have an opening for it, try only a few dozen heads the first season—the fact that you may like it yourself will mean little in selling it. For retail trade, or where your customers may be reached directly, the little bronze-colored Mignonette has a distinct quality of its own which discriminating users will be quick to recognize.

To get prime crispness and quality, lettuce—and in fact all the salad crops—must be grown rapidly. If possible, use ground that was manured in the spring, and in addition sow in the drills, or mix with the soil where each plant is to be set, a mixture of fine bone and dried blood, half and half. Big Boston requires about twelve inches apart each way, or fifteen inches each way under irrigation. Planting and fertilizing can be done rapidly by opening up furrows one way with the plow attachment on the wheel-hoe, and then cross marking and dropping the fertilizer at the cross marks, a handful to every three or four hills. Then reverse the plow and throw the dirt back, the cross marks between the rows serving to show where the plants are to be set. In growing crops for pin-money profits the employment of labor-saving methods in doing the different "operations" is essential: the ways that serve well enough where a few plants are set out for home use, will not answer when larger quantities are to be handled, on a semi-commercial basis.

TO PREPARE the plants for transplanting, which is usually done in from four to six weeks after sowing the seed, or during August, open up with the wheel hoe a shallow trench on either side of the row of seedling plants, and give a thorough soaking some hours before the plants will be wanted. The soil where they are to go should be marked, fertilized, and made ready for them just prior to transplanting, as it is important to have a freshly prepared surface, otherwise the dry soil from the surface will crumble down into the holes in the process of transplanting, greatly increasing the likelihood of loss. If the plants are large, or the weather dry, cut back the larger leaves a third to a half, as this lessens the transpiration, and does not make such a heavy drain on the little roots while they are becoming reëstablished. If the soil is so dry that watering seems necessary, apply it in the bottoms of the holes before transplanting.

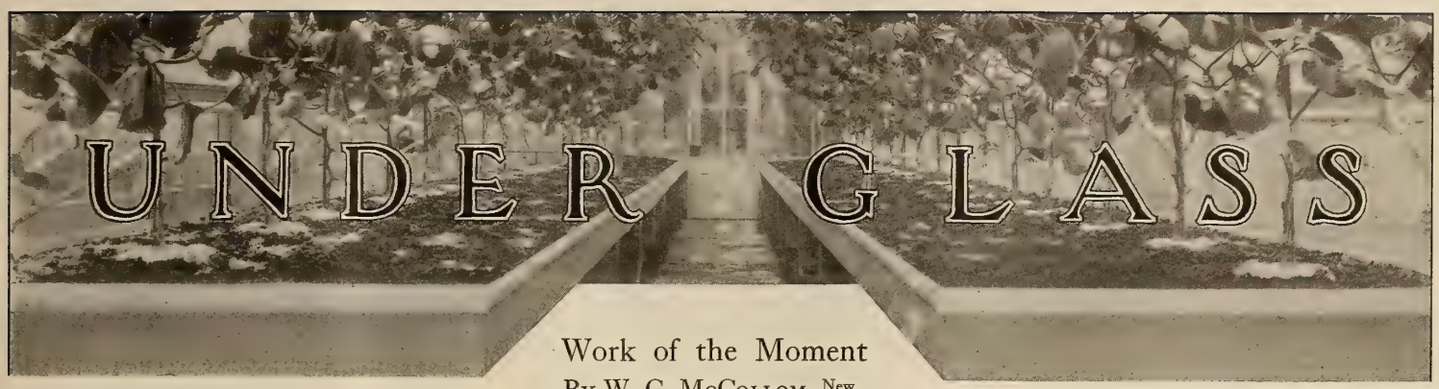
A few days after transplanting, give a light application of nitrate of soda, and follow this with another a week later. This, and clean cultivation, and irrigating if possible, will be all that is required until the plants are ready for market. Begin this as soon as the first few heads are ready. The last part of the crop may be carried without injury through the first few frosts by covering it two or three inches deep with marsh hay. As this may be used later for strawberries or other mulching, it involves little expense beside the labor of putting it on, which is not great. The price generally goes up after the first frost, so it is well worth while to save any lettuce you may have for this late market.

THE other salad plants: Cos lettuce usually sells in more limited quantity, but at a higher price, in most local markets, so it will be well to try it out, on a small scale for the first year. Dwarf White Heart is one of the best and easiest to grow of this type. To blanch the interior leaves or heads more thoroughly, tie the tops with raffia or with soft twine, in the same way you do to blanch cauliflower.

Endive is handled in the same way as lettuce until the plants are nearly matured. Then the plants, which are rather flat and spreading in habit of growth, are blanched by tying up the outside leaves, or by placing over them wide boards, preferably nailed together in a flat ∧-shape. Green Curled is the variety most generally sold, but the Giant-fringed grows to a larger size. Broad-leaved Batavian is the sort sold as Escarolle, used both as a salad and like spinach. As compared with lettuce, there is only a limited demand for either.

Witloof chicory is becoming more and more popular. It is grown during the summer to form large roots, and in late fall the tops are cut off, and the roots stored and forced as wanted during the fall and winter months. For more particulars about forcing, see the article on page 184 of The Garden Magazine, for April, 1916.

Corn salad is the hardiest of all. Sow thinly in drill in August or September, and protect with hay for early winter use. Good to follow the last of the outdoor lettuce crop.



Work of the Moment

By W. C. McCollom, New York

THE month of July brings important work for the greenhouse owner, because now begins the routine for the supply of flowers in fall and winter.

Chrysanthemums. The plants should be growing very rapidly, and the feeding must be carefully attended to—indeed this month is a critical time with the plants. To overfeed means failure, and lack of the proper amount of nourishment means flowers of a mediocre quality. There is no rule to apply; one must be governed by the condition of each individual plant. Certain varieties will stand more food than others. As a sort of guide for the beginner, a healthy, vigorous plant in an 8-inch pot can be fed several times a week—in fact, it requires it; but, of course, it should have been gradually worked up to this amount. If you believe that the plants can assimilate them, use a variety of feeding materials to supply the elements required, such as diluted cow manure, sheep manure, guano and special foods prepared for this purpose, and continue feeding until the buds show color, after which gradually stop it.

See that the Chrysanthemum house is well ventilated at all times. Spray the plants frequently, but do not have the foliage wet at night as it is liable to cause mildew. Be sure to kill all the small yellow butterflies you may see in the house, as they deposit their eggs on the undersides of the leaves and the young larvae, when hatched, will destroy the leaves. Keep the side shoots and suckers removed as rapidly as they form, and a little fire heat—just enough to dry out the house—during continued damp, muggy weather is beneficial.

Carnations. Late in the month these can be planted in the benches from outdoors. It is desirable to select a dark day for this work, and keep the greenhouse shaded for a few days until the plants have started root action. The soil for Carnations is one of the most important factors toward success next winter; one from the compost heap, if properly prepared, is ideal. If this is not available, a well chopped, turfy top soil to which has been added about one third well rotted manure will answer quite well. In either case a little bone meal worked in the soil will stimulate root action. A thin layer of rough, not rotted, manure should be placed in the bottom of the bench to prevent the soil from clogging up the openings.

Never plant in a wet, soggy soil. Neither should it be too dry. If, after being squeezed in the hand, it holds its shape, yet crumbles upon the slightest pressure, it is in the proper condition. When lifting the plants, keep as much soil as possible about the roots, and firm the soil well about the plants after planting. Then they can be watered. Do not soak the entire bench; simply give each plant a sufficient quantity to settle the soil around the roots. Spray the plants frequently on bright days; keep a sharp lookout for rust and at the first appearance pick off and burn all infected leaves. Keep the soil stirred in the benches to keep down weed growth, and to prevent it from souring. It is also advisable to pot up a few plants of each variety so that you will have some material on hand to fill any vacant spaces that may occur.

Calla Lilies should be started now. Plant the bulbs in the pots in which they are to remain for the winter, or plant them in the benches. Pot culture is preferable for private growers as it permits the plants to be shifted around, which is sometimes necessary when a large variety of plants are grown. The Calla delights in an abundance of water, yet it will suffer very quickly if not provided with proper drainage. So put in the bottom of the pot a few broken crocks, with a light covering of moss. Water the bulbs very sparingly until they have developed a good root system; after that water freely. They will stand immense quantities of liquid manure, particularly diluted cow manure.

Roses. Watch carefully for mildew. This *must* be kept out of the rose house. The plants should be grown just as cool as weather conditions will permit, and sprayed frequently on bright days. A little fire heat is helpful when several damp, foggy days follow each other. A good preventive against mildew is to keep the heating pipes painted with a paste made from flowers of sulphur and water. At the first indication of mildew on the foliage, dust the plants with the sulphur or use the sulphur in a vaporizer. If this does not check the disease, spray with sulphide of potassium solution (3 ounces to 10 gallons water).

Keep the soil in the benches stirred, but not deeply; the hand is the best tool to use. Simply prevent moss from forming and pick up and burn all leaves that drop. Make this a regular routine operation; and keep the plants properly tied up to their supports so that they do not flop over when they are sprayed, as it is necessary to use considerable force when spraying in order to keep in check the red spider.

Cineraria and **Calceolaria** can be sown this month for effective pot plants, but if you do not have a cool house, don't attempt to grow either of these plants. From 40 to 45 degrees at night is the best temperature. Sow seed in pans, using a light soil (of one third sifted soil, one third clean, sharp sand, and one third leafmold). Drainage in the seedpan is imperative, as the young plants "damp off" with the slightest provocation. When large enough to handle, pot up the seedlings in thumb pots, and keep repotting as often as necessary. Be careful in doing this, because over-potting is certain failure. When the roots have formed a solid mass on the outside of the ball, so that the plant will stand intact after the removal of the pot, shift to larger pots. An ideal place for both Cinerarias and Calceolarias is an outside frame with a slat trellis for shade. Both plants are very susceptible to green fly; spray frequently with tobacco water. If this doesn't keep the aphis in check, fumigate. The flies must be destroyed.

Primula alacoides. Now is the time for sowing a big batch of seed. This is one of the best of all pot plants, and also very acceptable as a cut flower. It should be handled just like the Cineraria.

Lily bulbs from cold storage planted now will follow the Chrysanthemum in flower in late fall, when there is more or less of a shortage of flowers. When received, pot up the bulbs in 4- or 5-inch pots, place them in a frame and cover with ashes or some similar substance about two inches deep. When the shoots show above this covering, lift the pots and bring indoors, grow along alowly and do not force them. When well rotted, transfer to 6- or 7-inch pots, in which they should be allowed to finish. Very little feeding is required if the final planting was made in a rich soil.

Plant Outdoors. Keep well sprayed the plants that are plunged or planted out of doors (Bouvardia, Oleander, Genista, etc.) It is during the hot weather of summer that such plants are usually received; if they are allowed to suffer for lack of water, the result is a premature ripening of the wood from which they never recover.

In Frames. Keep your eye on the potted plants in the frames (Primula, Cyclamen, etc.). If there are any badly twisted or contorted leaves on the Cyclamen, it is a sure sign that the mite is at work and the leaves should be immediately removed and burned. If the condition still continues destroy the plant.

During July the start is made for next winter's Carnations. The plants are lifted from outdoors and planted on the benches under glass

A One-Compartment House

A SMALL one-compartment greenhouse, properly managed, should supply a fair-sized family with plants and flowers during the winter. Taking carnations as the main crop, there may also be sown Antirrhinum, Mignonette, Stocks, Narcissus, Tulips, Hyacinths, Freesias, and many others; in one corner, perhaps a few heads of cauliflower and lettuce or rhubarb and asparagus.

In spring the house can be used to get an early start for the outdoor garden. All sorts of annuals, such as Asters, Heliotrope, Celosia, Pansy, etc., can be started for the flower gardens; cuttings of Geraniums, Coleus, Alternanthera, etc., for formal bedding; while for the vegetable garden lettuce, eggplant, pepper, tomatoes, etc.

Climbers of Merit

I WAS led into the growing of Roses because I wanted to protect my Dahlias. For several years I had been growing Dahlias for exhibition, and, being located on high ground in a seacoast town, where strong winds were prevalent, a windbreak was absolutely necessary. For this I used Climbing Roses and, after they were established, they did so well that I continued planting them, until eventually the whole plot was filled.

The soil is a sandy loam with a clay subsoil, with a natural drainage to the east. I use bonemeal only when planting the Roses. The only stable dressing I give is in the fall, as a mulch for winter protection; but as the season advances and buds form, I use liquid dressing (cow, sheep or hen) at different times during the season. The varieties were chosen with the idea of covering a long season of bloom, early, midseason and late, with a few perpetual blooms.

If you have had poor luck growing, Roses keep on trying, using the climbers this time. They are very easy to handle, some of the new varieties brought out within the last few years being strong rivals of Hybrid Teas. Most of them have beautiful foliage, almost immune from disease and insects except some of the Multiflora blood, the worst one in this climate being the old Crimson Rambler, which mildews so badly that I have discarded it altogether. Flower of Fairfield, or Everblooming Crimson Rambler, mildews a little but I keep it as it blooms all season. I use flowers of sulphur on the plants that mildew; the others can be kept clean with a strong pressure of plain water from the hose.

The pruning of Climbing Roses is different from that given to Bush Roses, as they produce their flowers on the two-year wood, and some even bloom on the second laterals or three-year old wood; so if the latter is pruned or winter killed they cannot bloom, and are then called "shy bloomers." Pillar Roses and all climbers that grow their wood on the main stalk need no pruning.

Ramblers that throw up strong shoots from the base underground I prune by cutting out the old wood as soon as it is through flowering; this throws all the strength into the new branches that will be started by this time, which will be the flowering wood for next season.

I have found that the only way to tell whether a Rose is really hardy or not in a certain climate is to try it out: Climbing Clothilde Soupert, which has been growing in my garden and blooming for twelve years, is listed in catalogues as being tender, while on the other hand Empress of China, a supposedly hardy variety, winter-kills with me.

As with the Bush Roses there are more pink kinds among the climbers than any other color. In a large collection such as mine there are apt to be several that will resemble each other. For instance, while they are all good varieties, there is but very little difference between Dorothy Perkins and Lady Gay, Farquhar and Minnehaha. Again Hiawatha and La Fiamma are very similar, the former being the better, however.

Tausendschön (Thousand Beauties), with all shades of pink, makes a good all-round Rose while it lasts. Birdie Bly is the most persistent bloomer I have, throwing flowers continually from early until late in the season. Wichmoss, a pink climber, the flowers of which are not very large, is hardy.

In white, I have Mrs. M. H. Walsh, Snowdrift, Carissima, White Dorothy, and Trier, the last named blooming all season until frost.

In yellow: Goldfinch, Electra, Aviateur Bleriot, Edwin Lonsdale, Gardenia, and Prof. C. S. Sargent, also Shower of Gold and Source d'Or divide the honors. Professor Sargent is about the best yellow, however, of any that has flowered so far; some of its blossoms are lemon yellow, though most of them are an apricot in color. The foliage is very handsome.

In red I have Excelsa, a wonderful color by gas light, Philadelphia Rambler and Baroness Ittersum. The latter is practically unknown as yet in the United States; the color is a scarlet-crimson on an orange-red ground, the clusters are small, the flowers quite large and not very double.

William C. Egan, flesh colored, has quite large buds in small clusters, opening quickly when picked.

Climbing Clothilde Soupert, white with pink centre, has hard round buds full of petals, and needs to be forced with liquid dressing to make them open in this climate.

Veilchenblau, the "blue" Rambler, is a strong grower, very hardy and almost thornless.

In singles, I have American Pillar, pink shading to white at the base of the petals. The flowers and clusters are larger than usual, on long, strong stems, and are wonderful keepers, especially when cut. Carmine Pillar is a large, showy flower. Then there are Hiawatha, La Fiamma and Paradise, the latter a pale pink shading to white with ruffled petals, producing a very pretty effect.

The early blooming, large flowered climbing Roses are the best of all the climbers. Climbing American Beauty has very good flowers, is perfectly hardy, and has taken a silver medal; Christine Wright, a wild-rose pink in color, is a strong hardy grower; Dr. W. Van Fleet, pale flesh pink, is a very beautiful and perfect Tea Rose on a hardy climbing bush. This also has won a silver medal.

Silver Moon, the winner of two silver medals, several first class certificates and awards of merit, is to my mind the most decorative Rose regardless of any class. The long, pointed buds are of an exquisite cream color, with a delicate fragrance; the open flowers are of a silvery white with bright yellow stamens. The flowers are from four and a half to five inches in diameter on strong stems twelve to eighteen inches long. The foliage is also good.

Massachusetts A. J. FISH

Death Of Jules Gravereaux

IN THE death of Jules Gravereaux, which took place in April, the world has lost one of the most famous rosarians of all time. The following brief account of his career, taken from the (London, England) *Gardeners' Chronicle*, is based on a detailed account in the *Revue Horticole:*

"Formerly manager of the Magasins du Bon Marché, Jules Gravereaux became the possessor, in 1892, of the mansion of L'Hay (Seine), a village which, since 1910, has been known as "L'Hay les Roses." No sooner was he established on his property, in the middle of a region where Rose growing has always been an important industry, than he began to collect and study the flower, of which he had soon gathered together nearly 1,500 varieties. In 1899 he asked Edouard Andre to draw up a plan of the Rosary, which rapidly became more and more celebrated, until it attained to a world-wide fame. Jules Gravereaux soon realized that his work would mean more than simply collecting horticultural varieties; he was bent on placing them in a setting worthy of their value, and making a collection of botanical species of the genus Rosa, which would serve the interests of scientific research and facilitate the production of new varieties by crossing. He formed at the same time a special herbarium, and a library which contained practically every publication of any kind devoted to the Rose. Among new Roses which we owe to L'Hay at least twenty could be mentioned which possess special merit. Such are Amelie Gravereaux (1904), Madame Ancelot (1901), Madame Ballu (1905), Madame Henri Gravereaux (1904), Madame Julien Potin (1912), Madame Labori (1908), Madame Lucien Villeminot (1904), Madame Rene Gravereaux (1907), Madame Tiret (1907), Madeleine Fillot (1907), Rose a parfum de L'Hay (1901), Madame Pierre Lafitte (1907), Les Rosati (1907), Madame Ruau (1908). Gravereaux presented to the city of Paris a collection of Roses, from which originated the Rosary of Bagatelle, where each year an international exhibition of new Roses is held. When Monsieur Osiris presented to the nation the mansion of La Malmaison, it was to Monsieur Gravereaux that Monsieur Ajalbert turned for help in reconstructing the collection of Roses made by the Empress Josephine on this historic estate. It was no easy task to search out the two hundred and fifty species or varieties which had been for so long abandoned by horticulturists. Thanks, however, to long and patient research, one hundred and ninety-eight of them have been discovered and replaced.

"Among the publications issued from L'Hay the following may be cited: Collection Botanique du genre Rosa, 1889; Catalogue des Roses à la Roseraie da L'Hay, 1905; La Culture des Roses dans les Balkans, 1901; Essais de fabrication d'essence de Roses à la Roseraie de L'Hay, 1906; Manuel pour la description des Rosiers, 1905; La Rose dans les lettres, les sciences, et les arts, 1905; Histoire retrospective de la Rose, 1910; Les Roses à la Roseraie de L'Hay, 1915. We trust that the work of Jules Gravereaux will be continued by his sons, who have collaborated in it and are in a position to understand its great importance."

A Boom for Rose Culture

TO THE Editor: The publication of the excellent "American Rose Annual," the increased interest the American Rose Society is taking in encouraging out-of-door cultivation of Roses, and the fact that no other flower is of such universal cultivation and that there is no monthly or weekly publication devoted to Roses and Rose culture, would warrant, I believe, THE GARDEN MAGAZINE in giving some more space even than it does to Roses and Rose culture. Especially would this be helpful in telling of American Roses and the possibility of a new race of Roses through crossing with our native wild Roses. Then cultural directions, suitable to different sections of our country of varied climates and soils would be helpful. All this should not be in exclusion of the other splendid departments of that very fine publication.

Tacoma, Wash. (REV.) SPENCER S. SULLINGER.

Roses for the South

IN THE South, Nature has provided the climate and the soil for the successful growing to perfection of the Rose. No garden, however small, is complete without a few Roses, and no landscape scheme should be made without them.

The following varieties have been tested and proved to be good growers and free bloomers under the conditions found in the South.

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Hybrid Teas: Kaiserin, Antoine Rivoire, Mme. Jenny Guillemot, Helen Gould, Aurora.

Bourbon Roses: Hermosa, Sombreuil, Burbank.

China Roses: Agrippian, Ducher, Louise Philippe, Pink Daily.

Dwarf Polyantha: Baby Rambler, Catherine Zeimet, Mlle. Cecil Brunner, Catherine Soupert.

Rugosa Roses: Atropurpurea, New Century, Sir Thomas Lipton, Magnifica.

CLIMBING ROSES

Climbing Roses: Wm. Allen Richardson, Aline

(*Continued on page 344*)

DREER'S
Mid-Summer Catalogue

offers the best varieties and gives directions for planting in order to raise a full crop of Strawberries next year; also offers Celery and Cabbage Plants, Seasonable, Vegetable, Flower and Farm Seeds for summer sowing, Potted Plants of Roses, Hardy Perennials, and Shrubbery which may safely be set out during the summer; also a select list of seasonable Decorative Plants.

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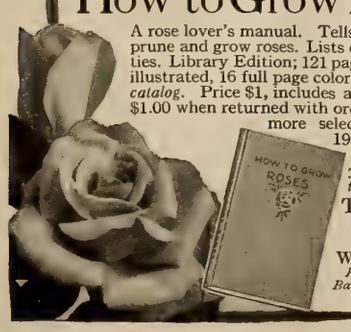

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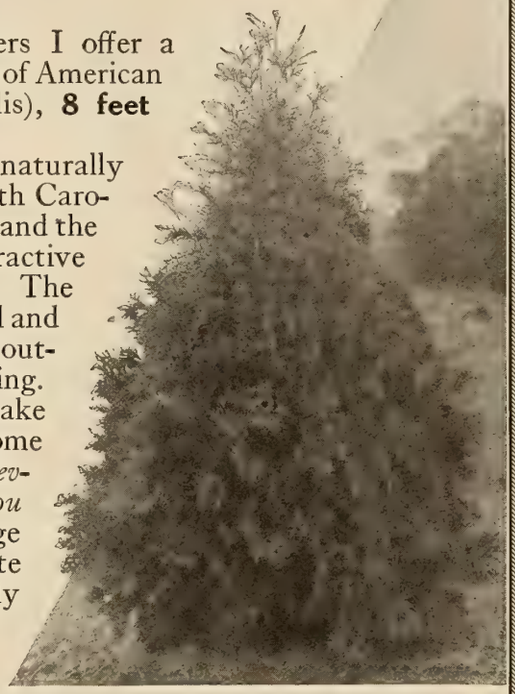
Rose Specialists Backed by 50 years' experience

American Arborvitaes, 8 feet high, $7.50 each



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American Arborvitaes grow naturally from Nova Scotia south to North Carolina; they are extremely hardy, and the foliage of bright green is attractive both in summer and winter. The shape of these trees is pyramidal and they retain their symmetrical outline without shearing or trimming.

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My supply of these splendid 8-foot Arborvitaes is limited, so you had better *send for yours to-day* in order to be sure of some of these beautiful evergreen trees. Send cash with order, or satisfactory business references.

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This is a strong, hardy evergreen climber, useful for covering garden walls, old stumps, or anything you wish to cover from view. The vine is a mass of clear green foliage that holds its color throughout the year, the hottest summer and the coldest winter having no effect on it. In the fall and winter Euonymus vegetus bears a profusion of bright red berries that combine with the green foliage to produce a charming appearance.

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It Will Last a Lifetime and Only Costs $3.00

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The "KIRKE SYSTEM" Sprinkling Can Plant Food is a product especially prepared for those who do not necessarily require the use of a garden hose, but still have small plots that should be watered. It will be found very serviceable and highly beneficial for piazza plants, greenhouse plants, plants grown in pots and in cemeteries, etc.

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Kirke Angle Worm Destroyer	1.15			3½ "	7 "
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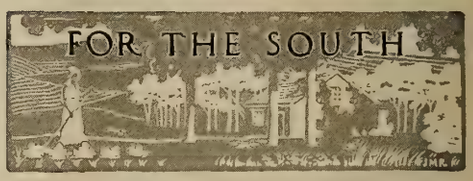

Continue the Spraying

CONSTANT cultivation in the garden is necessary to make the vegetables mature, to keep down weeds, and conserve moisture during the heated term. Use the hand cultivator where the distance between rows is narrow. Deep cultivation is to be avoided when the vegetables are nearing maturity, but the soil could be stirred on top to make a dry mulch.

A mulching of leaves, strawy old cow manure around the newly planted evergreens, the Rhododendrons, Roses and Sweet Peas keeps them moist and cool through the long hot summer. Water one part of garden thoroughly once or twice a week, rather than slight sprinkling over the whole garden. Be watchful of disease and insects on the melon vines. Cut away all affected parts, use bordeaux for disease and slug shot for insects.

Grape vines should be sprayed with bordeaux for grape rot almost to ripening time. Prune vines to let in sunlight. The latter part of the month transplant the celery plants from the coldframe to the open ground. See directions in The Garden Magazine, July, 1915.

Make constant use of liquid manure on the vegetables as well as the flowers. Set out the sweet potato plants and put in the winter crop of Irish potatoes. The Green Mountain is a good keeper. A successional planting of corn, lima beans, and beets and snap-beans and a late planting of black-eyed peas, navy beans, cucumbers for pickling, and late tomato plants the first of this month. The latter part of the month sow spinach in rows and Witloof chicory thinly in rows to be thinned out later.

Keep the asparagus bed free of weeds and broadcast much coarse salt.

Sow in the coldframes late cabbage seed, Brussels sprouts and cauliflower, and shade from the sun with slatted frames. Water thoroughly in the evenings.

The winter onions should be dug and laid in the shade to dry out, and later stored in a cool barn for winter use.

All plots in the garden not in use sow in crimson clover to be turned under in the spring as a green manure.

In the flower garden keep the soil constantly stirred between the flowers wherever possible. Sow at the end of the month or in early August in coldframes perennials for next spring's planting. They should be shaded from the sun and watered carefully and thoroughly every evening. Such things as Hollyhocks, Wallflower, Delphinium, Pyrethrum, Campanula, Pansies and English Daisies should be sowed now.

Do the summer pruning of the early flowering shrubs, cutting out the dead wood and such limbs as make it unsightly in shape, such as Forsythia, Lilacs, and Pyrus Japonica.

Look over the orchard thoroughly, cut out all affected limbs and those that crowd each other, and if the trees are heavy with fruit, thin out a great number so that those that remain will be larger and more perfect.

Virginia J. M. Patterson.

Estimating very generally it may be said that from three to five bushels of white potatoes from a plot 20 x 25 ft. would be a very satisfactory yield. In extensive potato growing 300 bushels per acre is excellent. By making use of garden methods this rate should be increased 75 per cent.

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WITH the right evergreens, August-September planting is an assured success. By right, we mean grown right, with the right fine, close-massed roots; in balanced proportion to the tops. You can depend on their thriving. They cost no more than the average undependable sorts. Send for catalogue. Pick out your trees now for later shipment.

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For Autumn Setting It pays, in the north, to plant Daffodils, Tulips, and other early spring flowering plants as soon as they are ripe. Many herbaceous plants may be set in August and September and give better returns next year than when setting is postponed until spring. Ask for Autumn Supplement N, ready in August.

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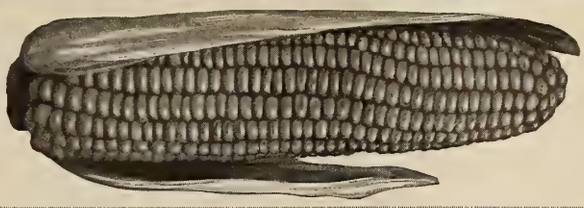

This Ear was protected with "Corona Dry"

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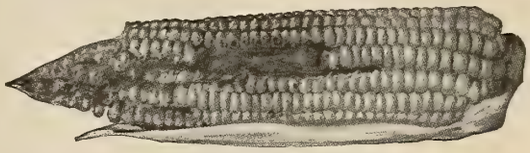

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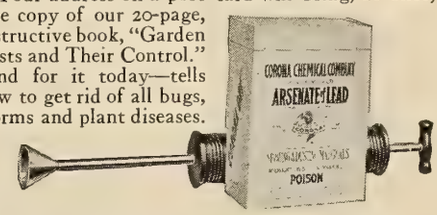
Your address on a post card will bring, at once, free copy of our 20-page, instructive book, "Garden Pests and Their Control." Send for it today—tells how to get rid of all bugs, worms and plant diseases.



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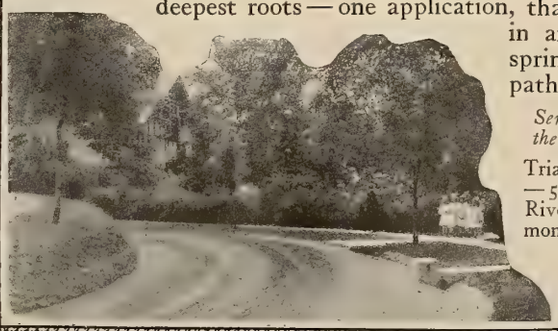
kills weeds permanently — quickly — easily — cheaply. Atlas gets down to the deepest roots — one application, that's all. You mix it with water in an ordinary sprinkling can and sprinkle it on your gutters, drives, paths and tennis courts.



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The GARDEN MAGAZINE READERS' SERVICE

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Tinting Interior Walls

We are building a house and have had the first coat of plaster put on part of the walls. Is it advisable to use some coloring matter in the finishing coat of plaster Paris and lime in order to avoid having white walls for a year; we are told it is not advisable to put on paper or wall paint for a year.—T. M. F., Virginia.

—IT IS not a common practice to put coloring matter into the final coat of plaster for temporary decorative effect. It would seem to be much more feasible to use on the plaster some such material as one of the flat tone paints made for this purpose. The use of any of the cold water paints, calcimines, etc., should be avoided as wall paper cannot be satisfactorily put on over these. There is no reason, however, why the addition of coloring materials to the final coat should not be feasible. There are many of these mineral colors available and doubtless your local mason's supply dealer could submit samples. The only way to be sure of results, however, is to mix up small batches of the plaster in known proportions with the coloring matter and test them out.

Should Bulbs be Lifted and Stored?

How should such bulbs as Hyacinths, Crocus, Tulip, Cannas, etc., be cared for? My trouble lies in not knowing what to do about taking them up and storing them. How long lived are they, etc.?—W. H. M., Ill.

—HYACINTHS and Tulips have true bulbs; Crocuses, corms; and Cannas and Iris rhizomes. The true bulbs grow to flowering size and then split up into others, some of which may be of flowering size and some will not be large enough to flower for one, two or possibly three years. These weaker bulbs can be grown on and later will be ready to flower. The flowering sized bulbs, as sold in the stores, will usually flower the second year unless they are those known as the double nose, top, or mother bulbs, when they will split up after flowering. The Crocus corms renew themselves on top of the old corms and will keep on reproducing flowering corms; but they also tend to reproduce small offsets, so-called seed corms, which may be grown on like the bulbs to attain flowering size in time. All Hyacinths, Crocuses and Tulips may be left in the ground under ordinary conditions and will continue flowering and multiplying, but they can be taken up if desired. If this is done the bulbs should be lifted after the foliage has died down; the lifted bulbs and corms are dried off in a shaded place and sorted according to their size; the largest being selected for flowering the following year. They are replanted in the late summer or early fall. Canna rhizomes, miscalled bulbs, are creeping, underground stems which grow from eyes or buds. These will not stand any suspicion of frost. They must be taken up a week after the frost has killed the tops, partially dried off in a warm room, or cellar, where they are to be kept dormant through the winter. In the spring these roots can be cut up into convenient pieces with a knife, any piece with a bud or eye being sufficient to make a new plant, and can be set out of doors after the ground is warm, say the end of May; or the young roots may be started in a frame or hotbed and transplanted later as convenient.

Eggs and Butter by Parcel Post

I am a young man now attending college, but will probably leave and go to work. I have an idea of making money in which you may be able to give me sound advice. It seems to me that the parcel-post method of selling eggs, etc., from the farmer direct to the people is not a success, since it is little used. I live in a residential section of a city; why can't I go to some farmer within a reasonable distance, buy eggs and butter from him, and sell them to the people of my section at a cheaper price than the eggs bought from the groceries, and yet enable me to make a nice profit on what I sell? It would mean just one middleman from farmer to producer, instead of four or five. Is my plan practical? If so, can you give me any advice as to how I should go about it?—H. J., New York.

—THEORETICALLY, we should say that this plan is an admirable one. When it comes into putting it into practice, however, certain difficulties arise which, unfortunately, we do not feel as well equipped to solve as should be the person who has the plan in mind. For instance: the first difficulty would be to find the necessary egg producers who could, and would, be willing to guarantee enough eggs of the right quality to put the proposition on a sound basis. Next, the details of getting these eggs to a central distributing point with the minimum of delay, breakage, etc., would have to be worked out. Finally, there would be the task of locating enough consumers to assure the disposal of a uniform number of eggs throughout the entire season. Without such a market assured, few farmers would probably care to send you any considerable proportion of their output. However, these matters are simply details of management such as confront any person organizing any commission business, and there is no reason why, with a careful study of local conditions, you could not work out a way of making the business profitable. Of course, as you may have realized, though you have not mentioned it, the business of buying up and retailing any sort of produce, especially perishable materials, calls for a considerable amount of business skill, foresight and experience. These factors no one is able to give you but yourself.

Ants in the Lawn

For two years I have been troubled with ants in my lawn, first in two large hills but later all over the lawn in separate hills six to twelve inches apart. I have used carbon tetrachloride, but that would now be an endless job and expensive. It also kills the grass. Is there anything else that I can use?—A. H. P., New York.

—INSTEAD of using carbon tetrachloride use bisulphide of carbon; it is much cheaper and even more effective. Bisulphide of carbon is a colorless volatile liquid which easily sinks into the ground; and the fumes, which are heavier than the air, quickly penetrate downward into the most remote corners of the ants' run. One or two tablespoonfuls of the liquid may be carefully poured into the opening of the nest and a damp cloth or a handful of soil should be immediately put over it and packed down tightly. Nothing else is necessary. One word of caution is well in reference to the handling of this poison. It is highly inflammable, and the vapor is dangerously explosive. Be very careful, therefore, not to use bisulphide of carbon in the presence of a naked light or in the neighborhood of a fire.

Preserving a Shingle Roof

What is the best material for preserving shingles of gray cedar that have been laid on a roof? A thin white lead paint has been advised, also pure linseed oil, a creosote stain, etc.—H. L. F., New Jersey.

—WE DON'T believe anything will increase the life of shingles already laid on a roof. White lead would probably do them harm, since it would stop the circulation of air through the upper surfaces of the shingle. An oil might help if it were to thoroughly penetrate the surfaces, but either a linseed oil or a creosote oil would be very slow to dry, and by mixing dryer with it you would simply insure its not penetrating. We think they had better be left alone.—A. E.

Hollow Tile vs. Wood or Stone

Is a hollow tile house as cool in summer and warm in winter as one built of stone? What is the expense, as compared with wood and stone?—S. W. F., Washington, D.C.

—WE WOULD hardly consider a house of hollow tile as cool in summer or as warm in winter as a stone house. While the air in the tile gives a good insulating wall, the additional thickness and mass of a stone wall still has the advantage in this respect. A house built of stucco on hollow tile would probably cost 15 per cent. more than a frame house. We could not even guess at the comparative cost of the stone house, since so much depends upon whether there is an abundant supply of local stone and how nearby it is obtainable. It would be far better to get local contractors' competative estimates on all three types.

Botrytis Disease on Peonies

How can we fight the disease of Peonies that dries up the buds as they are about to develop blooms? Also, how is a healthy and luxurious appearance of the foliage retained?—A. E. O., Illniois.

—THIS Peony trouble is what is known as the Botrytis blight; this disease can be controlled only by the most rigid and prompt eradication of the diseased buds, shoots and leaves. Spraying has been tried but it has not been found very satisfactory. Inspect the plants every day until after blossoming time, at least, removing every wilted stalk and diseased bud and burning them. Cut the tops early in the autumn, removing the soil from the crowns and cutting the stems down as close as possible. Burn the refuse. It is in the old stubbles that this pest lives from year to year. If the disease shows in the flower buds it is also responsible for unhealthy looking foliage. The only thing to do is to spray with bordeaux mixture, cut out the diseased tissue, and dress the surface of the ground with dry bordeaux or paste. Give the plants good cultivation and feeding after flowering, as it is during the late summer that the vigor of the next year is controlled.

Liquid Manure

What is the method for making liquid manure?—W. A. B., Maryland.

—PLACE about a bushel of stable manure in a bag of burlap or other coarse material, or even a net of wire mesh, and suspend this from the top of a barrel full of water. After a couple of days the liquid can be drawn off from the bottom through a spigot or dipped out of the top. For use it should be diluted to the color of weak tea. It may be applied once a week at the rate of approximately half a gallon to a good sized plant.

What Kind of Pergola?

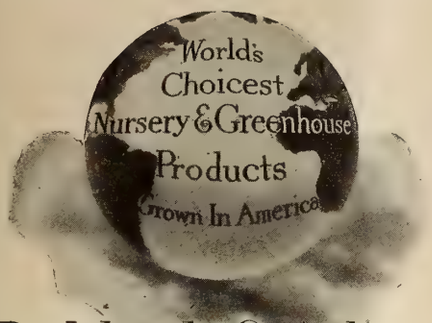
We are about to erect a pergola between our Church and Parsonage. Where can I find designs which might be followed by some local mechanic?—C. H. M., Minn.

—THE ordinary pergola, such as is used in the garden, would hardly be suitable for this particular location. We would suggest that the best results might be obtained by consulting the man who designed the church, or some local architect. It would certainly require special drawings to make such a connecting link as this without making it an absurdity.

Eliminating the Peach Borer

Is there any possible way to prevent the depredations of the peach borer? Inserting a wire into their burrows does not seem to be sufficiently effective. Is there anything that can be applied to the lower part of the tree trunk that will repel the moth when it seeks to lay its eggs?—N. L. G., Illinois.

—A COMPREHENSIVE campaign against the peach borers should involve the following things: the opening of every burrow that can be discovered and the destruction of the grub therein with a pointed wire. This can be done in late fall and again early in June, after which the earth should be mounded up around the trees for 8 to 10 inches. In the fall it is often well to pull away some of this earth so as not to provide nesting places for rodents. Some people recommend the use of washes on the trunks. One of these consists of one pound of arsenate of lead plus five gallons of lime sulphur, to be put on with a brush; but probably the seeking out and destroying of every individual insect is the only method that will give entire satisfaction. Of course, this must be done not only in your garden or orchard, but also in all the trees in your neighbors' grounds from which each year new infestations may start.



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Lonicera Belgica (fragrant Dutch Honeysuckle). **Lonicera Reticulata Aurea** and **Lonicera Halliana.**
Periploca Graeca (Silk Vine).
Pueraria Thunbergiana (Kudzu Vine).
Schizophragma Hydrangeoides (climbing Hydrangea).
Tecoma Radicans (Trumpet Vine).
Vitis Coignetiae (Crimson Glory Vine).
Flowering Crabapples.
Double Flowering Peach.
Figs, in varieties, specimens.
Grape Vines, in great variety, for outdoor or greenhouse planting.
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Ampelopsis, Euonymus, Wistaria, Japanese Maples in all varieties.

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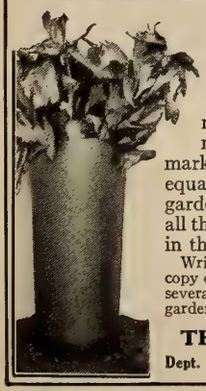

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Top Dress Your Lawn Now With Alphano

Important July Uses of Alphano On Your Lawn—In Your Garden Around Your Trees and Shrubs

THE first vigor of the Summer's growth is over. The early fertilizer you may have used has mostly spent its force, or been carried down by the rains below the roots' reach.

The hot suns of July are here to suck the moisture out of the soil.

The drying winds of August will follow.

Right now, then, it is of greatest importance to encourage and fortify the root growth of your grass, vegetables, flowers and shrubs by using a top dressing of Alphano.

Spread it on your lawn and rake in. It will promptly stimulate the thick growth of those fine fibrous roots so necessary for a thick enduring sod. Dig it around your shrubs and encourage an abundance of new top growth, which in so many varieties is the foundation of next season's bloom. Sow it along your vegetables and cultivate in. Results will be abundantly apparent. Put it around your flowers and dig in, encouraging not only more and finer blooms, but insuring their longer season.

And above all, bear in mind that Alphano absorbing as it does five times its own weight in moisture; acts as a sort of an internal reservoir, giving a long continued supply of moisture to the roots. In short it is a **dry weather resistant.**

Alphano is odorless. A black, dry, finely pulverized assistant you can't afford to be without. Its low price permits of its liberal use.

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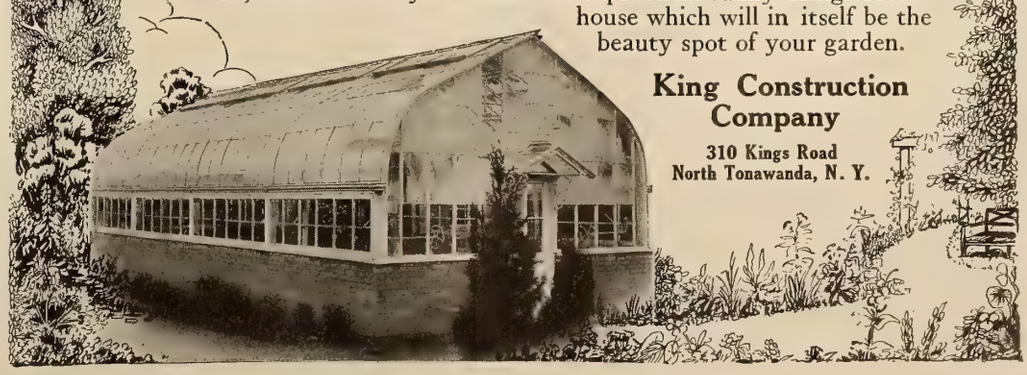

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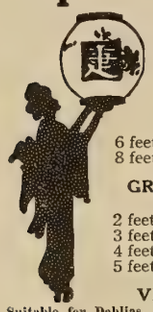

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6 feet long	$ .40	$ .75	$1.25	$10.00
8 feet long	.75	1.25	2.25	17.50

GREEN COLORED INVISIBLE BAMBOO

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2 feet long	$ .25	$ .40	$ .65	$ 5.00
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GALLOWAY 1916

COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Lectures in July

(The following dates are meetings unless otherwise specified)

1. N. Y. Bot. Garden, Bronx Park: lecture, "Wild Flowers of Summer," Dr. N. L. Britten.
3. New Bedford, Mass., Hort. Soc.
   Detroit, Mich., Florists' Club.
   Colorado, Denver, Florists' Club
   Retail Florists' Club of St. Louis, Mo.
6. Garden Club of New Rochelle, N. Y.: show
   Marshfield, Mass., Garden Club.
   Cook Co. Florists' Asso., Chicago, Ill.
   Chicago, Ill., Florists' Club.
   Albany, N. Y., Florists' Club.
   Dayton, Ohio, Florists' Club.
   Milwaukee, Wis., Florists' Club.
   Reading, Pa., Florists' Asso.
   Terre Haute, Ind., Florists' Club.
7. Pasadena, Cal., Hort. Soc.
8. Dobbs Ferry, N. Y., Hort. Soc.
   N. Y. Bot. Garden, Bronx Park: lecture, "Botanizing in Sweden," Dr. W. A. Murrill.
8, 9. Mass. Hort. Soc., Boston, Mass.: sweet pea exhibit.
10. Rochester, N. Y., Florists' Club.
    Park Garden Club, Flushing, L. I.
    Cincinnati, O., Florists' Club.
    Springfield, O., Florists' Club.
11. Syracuse, N. Y., Rose Society.
    Toledo, O., Florists' Club.
12. Nassau Co. Hort. Soc., Glen Cove, L. I.
13. Omaha, Neb., Florists' Club.
    St. Louis, Mo., Florists' Club.
15. N.Y. Bot. Garden, Bronx Park: lecture, "The State Park at Devil's Lake, Wis.," Dr. A. B. Stout.
15, 16. American Sweet Pea Society, Bar Harbor, Me.: annual show.
17. Florists' and Gardeners' Club of Rhode Island, Providence, R. I.
    Detroit, Mich., Florists' Club.
18. Portland, Ore., Floral Society.
    Gardeners' and Florists' Asso. of Ontario, Toronto, Can.
19. R. I. Hort. Soc., Providence, R. I.
20. Marshfield, Mass., Garden Club.
    Worcester Co. Hort. Soc., Worcester, Mass.: sweet pea exhibit.
21. Pasadena, Cal., Hort. Soc.
22. Mass. Hort. Soc., Boston, Mass.: exhibit.
    N.Y. Bot. Garden, Bronx Park: lecture, "Plant Life of the Sea," Dr. M. A. Howe.
    Dobbs Ferry, N. Y., Hort. Soc.
24. Park Garden Club, Flushing, L. I.
25. Toledo, O., Florists' Club.
27. Reading, Pa., Florists' Asso.
29. N.Y. Bot. Garden, Bronx Park: lecture, "Popular Books on Botany," Dr. J. H. Barnhart.

Starting Another Garden Club

THE Norristown Garden Club was started three years ago by a lady who had a small flower garden and who was compelled to throw away Lily-of-the-valley plants, owing to their occupying too much space in her garden in proportion to their short period of bloom. An idea occurred to her: several friends were asked to her home, the plan of forming a club was discussed, temporary officers elected, a committee on by-laws appointed, and a public meeting was called within the next two weeks.

A constitution and by-laws were subsequently adopted, the stated object of the club being to "promote interest in the culture of flowers, and exchange of ideas, also seeds, plants and bulbs." The officers are a president, vice-president, secretary and treasurer. The dues are twenty-five cents. The club meets monthly at the homes of the members.

One of the first club trips was to Bartram's Garden, to the attractive old home of the famous botanist. The ancient cider press and site of the spring house, and the kitchen with its huge fireplace, were inspected as well as the fine trees and plants collected from all parts of the world by John Bartram. The ancient Cypress, though dead, still stands and vines entwine it.

The club's first local activity was to plant the yard of the new Y. W. C. A. building; some of the plants were purchased, others contributed by members from their gardens. The members did the planting.

Each year a "plant exchange" is held at the home of a member who has a large garden and lawn. The town people are asked to bring to the exchange seeds and bulbs and plants well wrapped in damp newspapers and labelled, and to take what they want from the exchange. Blooming plants are sent at Christmas each year to "shut-ins."

Last year the Club undertook to cultivate some of the vacant lots, or rather dumps, around the town. Seeds and instructions for planting were furnished. At the end of the season each person who had cultivated a lot was to pay one dollar toward the expense. The Club did succeed in clearing up some very unsightly dumps, and the individuals working the plots were in some cases able to make a moderate amount of money from the sale of vegetables.

Each year we celebrate the anniversary of our organization by having a birthday party, inviting the public and having a speaker from out of town. Mr. Otto Thilow has twice addressed the Club, and Mr. Adolph Miller has spoken to us about flowering shrubs.

Our programme for the coming year includes papers and informal talks on the flowers of California, raising plants from slips, Roses, remedies for plant diseases, flower arrangement, Rhododendrons, Gladiolus, etc. We encourage the planting of trees throughout the town and frequently send articles to the local papers about their care.

We have about thirty members and, though our organization is still very young, we hope in the future to accomplish great things.

Norristown, Pa. Bertha S. Harry.

The American Peony Society

THE annual meeting of the Society, held in New York, June 9, 10, 11, proved to be somewhat early for the season, and but few local growers exhibited. In the varieties winning in the color classes there were M. Martin Cahuzac, dark red; Festiva Maxima and La Tendresse, white; Marguerite Gerard, light pink; Mons. Jules Elie, dark pink. These were chiefly shown by B. H. Farr, Cottage Gardens, and S. G. Harris and G. Peterson. For the "largest and best collection" in the amateur classes, Mr. James Boyd of Haverford, Pa., was the winner. Giving variety to the exhibition were numerous herbaceous plants, including Irises, etc., in named collections; and T. A. Havemeyer staged Lilium rubellum, rose pink, and L. colchicum, lemon yellow, and the late-flowering Lilac, Syringa Bretschneideri, which is a large inflorescence, rosy lilac in color. The old officers of the Society were reëlected, and it is probable that next year's meeting of the Society will be held in the neighborhood of Philadelphia.

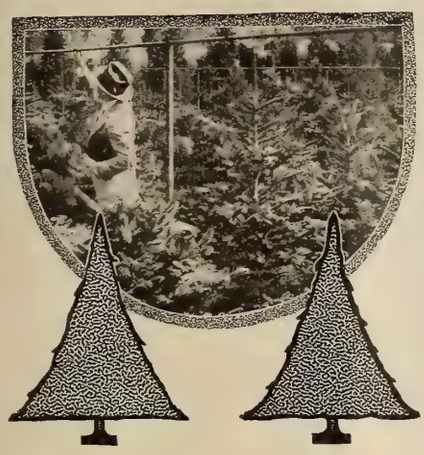
Seen At Boston

VISITORS to the spring show of the Massachusetts Horticultural Society were particularly impressed by the fine display of Rhododendrons (hybrids) exhibited by Mr. Hunnewell. The varieties were interesting because of the richness of the collection from which the specimens were drawn, its age and the fact that last winter proved a very trying one for the Rhododendron family. These specimens, which the grower, Mr. T. D. Hatfield, had forced into bloom by bringing indoors, were presented as typical varieties for New England: Lady Claremont, Charles Dickens, E. S. Rand, Marquis of Waterford, Prometheus, Cunninghami alba grandiflora, Nivea, Princess Mary of Cambridge, Everestianum, Mad. Carvalho, Lady Grey Edgerton, Henrietta Sargent, and Boule de Niege. The new yellow-flowered Azalea sinensis, a deciduous species from China, was particularly interesting and received the Society's silver medal. Professor Sargent received the gold medal for a large collection of Azaleas, a score of distinct forms of the Kirishima type (Azalea obtusa). These may be described as color variations of the style of the well known Hinodegiri, all solid masses of bloom in the early spring and ranging in shades of intense reddish crimson and true magenta.

A Garden Club At Sing Sing

EVERYTHING is being done to uplift the men in Sing Sing Prison and make them better able to face the world. They have been given books and music; why not flowers and the implements for taking care of a garden? Therefore, a garden club has been started in the prison for the purpose of beautifying the grounds inside the prison walls, where the prisoners may be able to see the flowers. Contributions of plants, seeds, bulbs and simple garden tools, such as watering cans, rakes, hoes, spades, weeders, etc., are solicited, and may be sent to the Garden Club, care of Mr. Spencer Miller, 354 Hunter Street, Ossining, N. Y.

Marguerite Spaulding.



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In the first place, they are superior stock to start with. We keep it superior, by keeping it growing vigorously. They have no dry weather struggles, because as you see in the cut above, they are overhead irrigated. Roots and tops are equally developed. They are dug and packed for shipment by our own special methods.

They plant as successfuly in August or September as in April.

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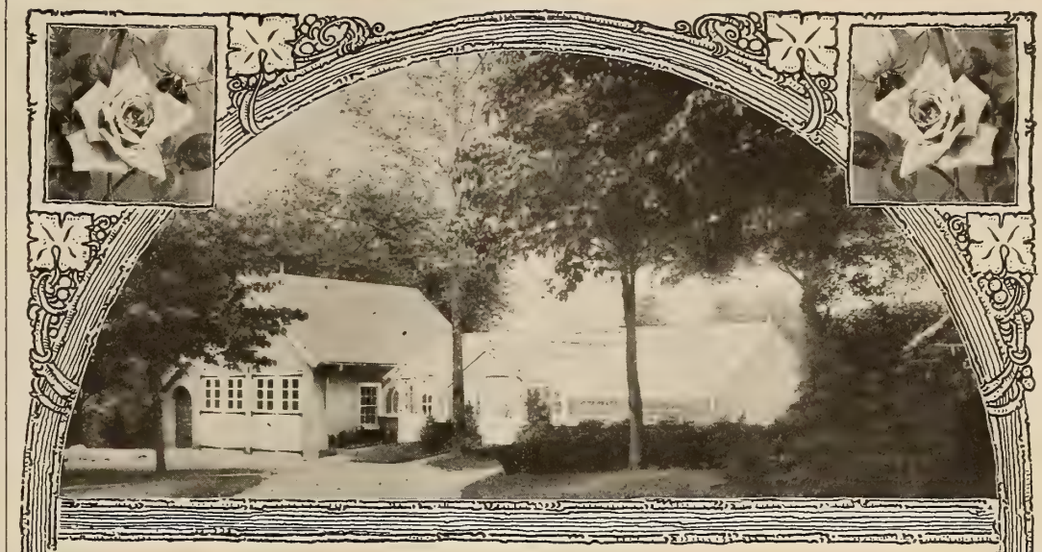

Two Brothers—and Their Two Greenhouses

THEIR names are Pilling, Wm. S. and C. J. Both live in Philadelphia's suburbs. One had rather definite ideas of the kind of garage he wanted and the greenhouse to adjoin it. He had the genuine joy of developing his dream ideas on paper; while it was our privilege to convert his greenhouse dream into a reality. The result was so satisfactory that his brother asked us to practically duplicate the greenhouse for him.

Both these houses are shown in our new catalog—both are fully described, including a clear little plan alongside. Perhaps their greenhouse solution may be yours. Send for the catalog and see.

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Contributor to The Garden Magazine

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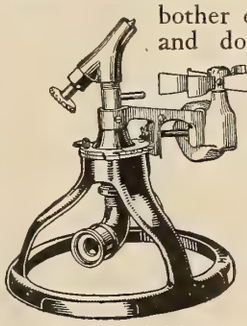

The Dayton Sprinkler

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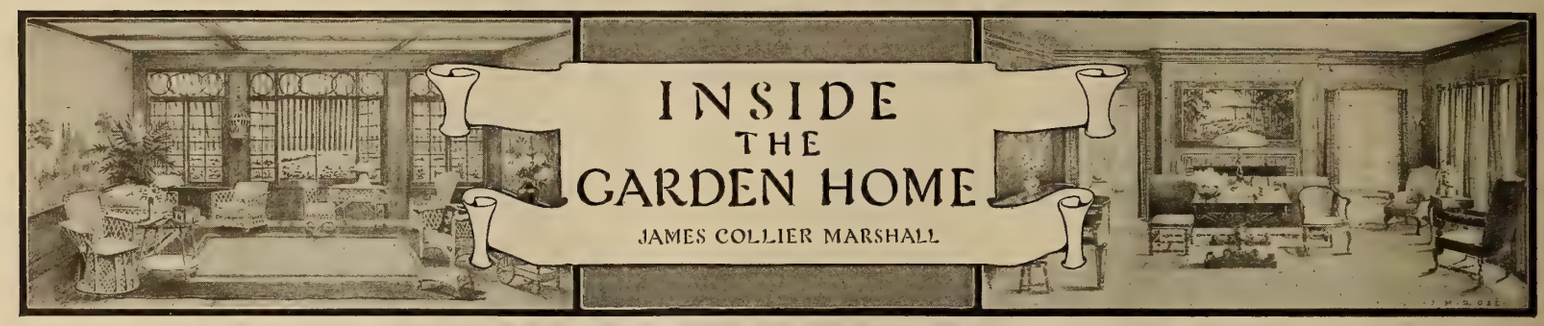
BUY NOW

Buy now—plant in August or September. Buy Bay State grown evergreens. They have back bone. They have the roots. They are top notch in every way.



Cool Colors for Summer Furnishings

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

THE possibilities for beauty in summer furnishings for the house are never fully realized until one makes a spring tour of the shops and sees the many charming articles for this purpose and visualizes for one's self the dream-house of comfort one's home may become.

The dainty cretonne shade makes this glass lamp ideal for the nursery

A recapitulation of the impressions of such a tour will show that simplicity is the chief factor in the success of every individual piece and decorative scheme, and more than this, there is a color clarity hitherto unnoted. That is, only clear, pure tones of color are used—sky blue, bright apple and moss greens, crimson, and usually as a decoration and foil for white. This feeling is expressed in all the decorative materials. The rugs are gay and fresh looking; the cretonnes, for covers and hangings, are all one could wish for in this respect, and the curtains themselves are as summery as the season itself.

The rugs this year are really remarkable, there being an unusually fine lot of rag carpetings of various weaves and designs, and a brand new material of woven flax that is altogether charming in effect and entirely suitable for this use. These come in plaid and herringbone patterns, as well as in solid color, in seventy-five different color combinations from which one may make a suitable and an easy selection.

With a fresh looking rug one must use nothing but crisp white curtains, and these are so inexpensive as to make the purchase of extra curtains for summer use only a real economy. Either a dainty barred or dotted-swiss, or a sheer cotton scrim will be excellent, though the latter is, perhaps, the more desirable for the living rooms as it is more formal in appearance, being just as serviceable since it, too, may be put into the washtub with the most satisfactory results. Indeed, it looks better after several washings and a very nice quality can be had at 25 cents.

Naturally, summer furniture lays first claim on one's attention, since in this line we seem most to crave a change, and one finds a great variety of the plain and painted article built on simple straight lines with no unnecessary decorations of any sort. In many cases old and familiar types of furniture are painted in new combinations. For example, Windsor chairs are painted white with only the top rail and arms in sky blue, the side chairs showing the plain fan back of spindles rimmed with blue. And with these one may use a simple straight-legged white table whose drop leaf top is banded with the same blue. These are quite inexpensive and are equally good for porch or dining room use, though nothing could be better for the summer bedroom than this cool and dainty type of furnishing when used with dainty swiss curtains.

Nothing is so satisfactory as crystal and glass. This etched glass beside side set costs $1.60; the cut crystal one is $3.50

There is another chair pattern that is quite good looking, constructed on the generous proportions of the straight-legged, square seated Chippendale chairs, painted white except for the solid splat in the back and the outer facing of the seat, which are tinted blue, green, or any color one desires. These are particularly good for porch use, but when fitted with flat chintz cushions striped with the same color, they are admirable for the breakfast-room.

These painted tin labels, $1.50 each, and paste pot, $2.50, will make attractive the writing table

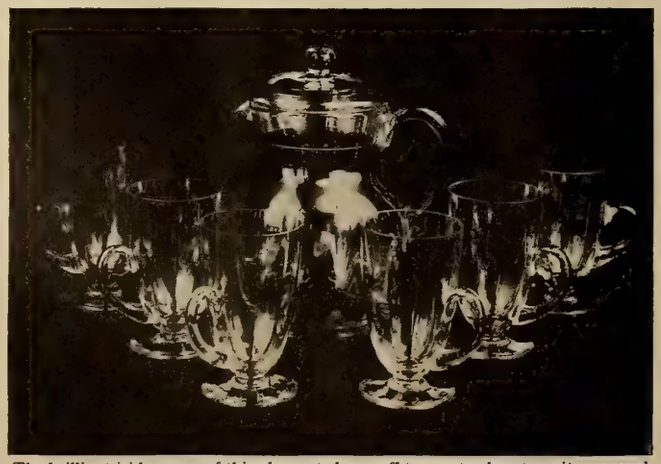
That this clear color is carried out in the smaller decorative objects with equal success will be seen at once in the attractive articles pictured on this page, the tin tobacco box at the lower left being especially decorated to be used on a white and blue porch table, its bright blue ground throwing into high relief the white sailed barques that breast the triple waves.

Note also the tin labels for keeping in order one's correspondence and accounts, decorated to match the gay summer writing desk. These and the box to hold the unsightly though necessary paste pot are very attractive and come in many forms.

Even as regards glass this clarity is observed. No longer does one see the clouded glass of two years ago, but only the clearest crystal or glass and frequently iridescent glass is used to great advantage with these summer settings. The good looking water set shown here is of the last named variety, its brilliant iridescence showing off with great effect its unusual contour.

Dinner table service has been made much more attractive by the use of glass dishes. Glass service plates have been mentioned here before but when dainty glass cups filled with jellied consommè are seen with these, the effect is charming. Equally good looking are the glass ice cream services either in plain or decorated glass and crystal. These come in many prices.

Adventure breathes deep in the design and bright colors of this tin tobacco box, making it most desirable


The brilliant iridescence of this glass set shows off to great advantage its unusual contours and will make it a graceful addition to any summer setting

The rich hued decorations of this flower pot and saucer will prove an excellent foil for growing ferns

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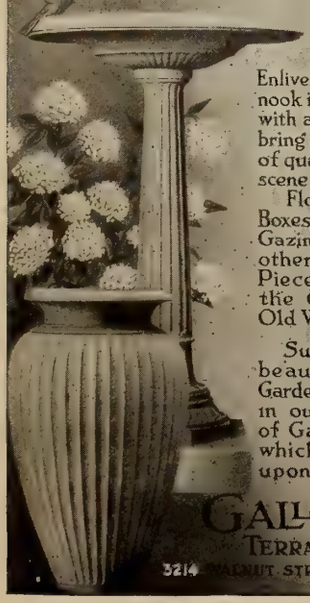
GIVES THE GARDEN THE ESSENTIAL TOUCH



Enliven some favorite nook in your Garden with a Bird-Font and bring an Atmosphere of quaintness to the scene with a Sun Dial Flower Pots and Boxes, Vases, Benches, Gazing Globes and other interesting Pieces will recall the Charm of the Old World Gardens

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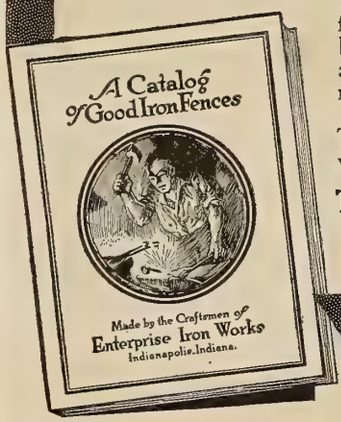

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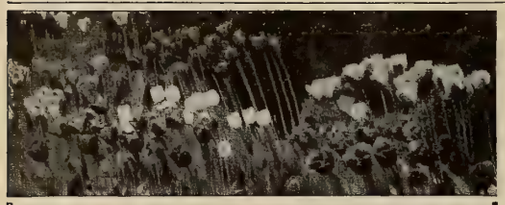

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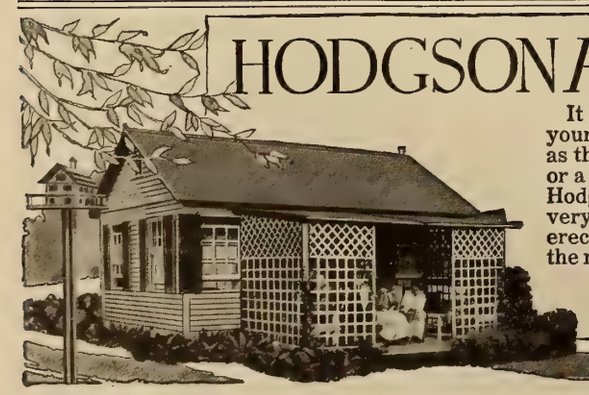

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It is not too late in the summer to erect on your grounds now a playhouse or studio such as this, a garage, a screen house for recreation, or a cottage in the woods or at the shore. A Hodgson Portable House can be procured in a very short time and the painted sections erected in a day or so. The catalog illustrates the many styles for any season or climate.

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Fountains and Their Decorations

THE ever increasing use of fountains as a part of the decorative plan of the garden is responsible for the numerous new fountain designs now to be found as well as the smaller movable articles that are to be used with them and of which there are legion.

To judge by the patterns available, the small, intimate fountain is much more popular generally than the very formal types of whatever size—and child forms, whether gay or pensive, enjoy the greatest favor.

The fountain pictured here is as remarkable for its conception as for its modelling which is well-nigh perfect. Three sporting fish spout water at the beautiful child whose whole body expresses her rapt though

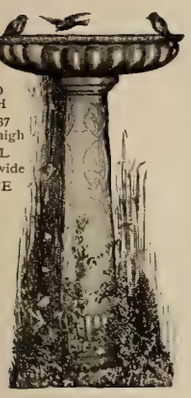
quiet enjoyment in the antics of the fish, thereby creating for the observer a double interest. This charming model, about 19 inches tall, is the work of Edward Berge and in bronze sells at $350.

Another fascinating fountain that received much deserved attention at the spring exhibition of American sculptors, shows a chubby boy baby about 26″ tall holding in either hand a terrapin by the tail, which condition causes them to spout water downward, to the boy's great joy, as his head is thrown backward child fashion, and his face and whole body are quivering with laughter. Even his little toes wriggle with delight.

It would be well for all garden lovers within reach of New York to keep in mind this annual exhibition as each year are shown more interesting conceptions deserving of every one's attention and praise.

Among the many good looking accessories for pools the Japanese cranes shown here are very effective, and especially so when placed where one gets but a passing glimpse of them. About 18″ tall, they cost $7.50.

BIRDS and FLOWERS



BIRD BATH No. 237 34 in. high BOWL 17 in. wide PRICE $14.00

Hundreds of other exquisite ITALIAN OLD IVORY TINTED POTTERY pieces are shown in our new Garden Pottery Catalog. Bird Baths, shapely vases and pots, and graceful sundials and benches and many other things are included for indoor or outdoor use.

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is weatherproof, tough, hard—and very inexpensive. Send for Catalog. Order direct from the Pottery. We pay freight on all purchases amounting to $5.00 or over East of Denver.

WHEATLEY POTTERY
2431 Reading Road, Cincinnati *Established 1879*

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Garden and lawn sprinkler will distribute water evenly over the lawn or garden. Covers a space 15 by 60 feet. Recommended and used by leading gardeners everywhere.

Save water and secure best results by using a sprinkler which throws large spray.

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DO it before it ruins your crop prospects. Timely spraying will kill off the destructive insects—banish the blights. Spraying pays. Save money on your spraying outfit, too. We can save you one-quarter to one-half on any kind of sprayer, hand or power. Look at this one, for instance—

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Can Be Used With Any Barrel $6.45

If you bought it in the ordinary way it would cost you between $10.00 and $12.00

For various kinds of spraying—orchards, vineyards, shrubbery or for white washing dairies, poultry houses, etc. Double acting—brass nozzles—brass cylinder—brass valves—brass valve seat—paddle agitator. Furnished with 5-foot hose. Built to last for years—guaranteed to give satisfaction.

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—our Special Farm Book, every page filled with hundreds of BARGAINS in all kinds of Spraying Outfits and Supplies—as well as farm tools and materials. New—just off the press. Send for a FREE copy today.

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It is simple in construction and made to endure. Makes a cut 7 inches wide.

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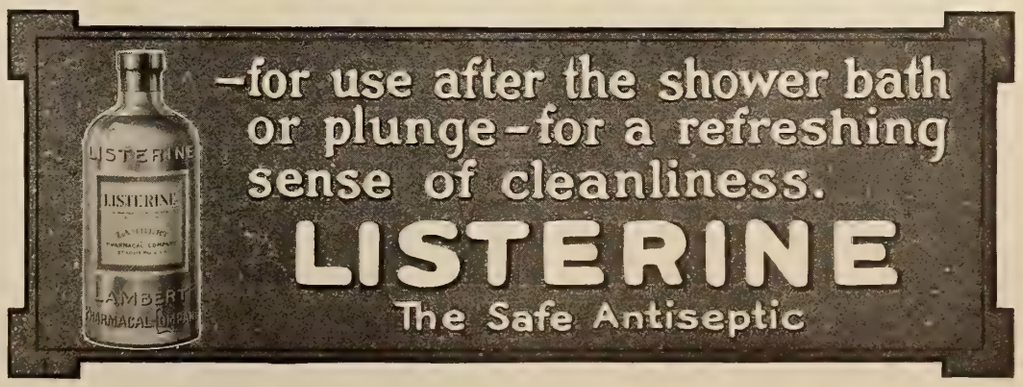

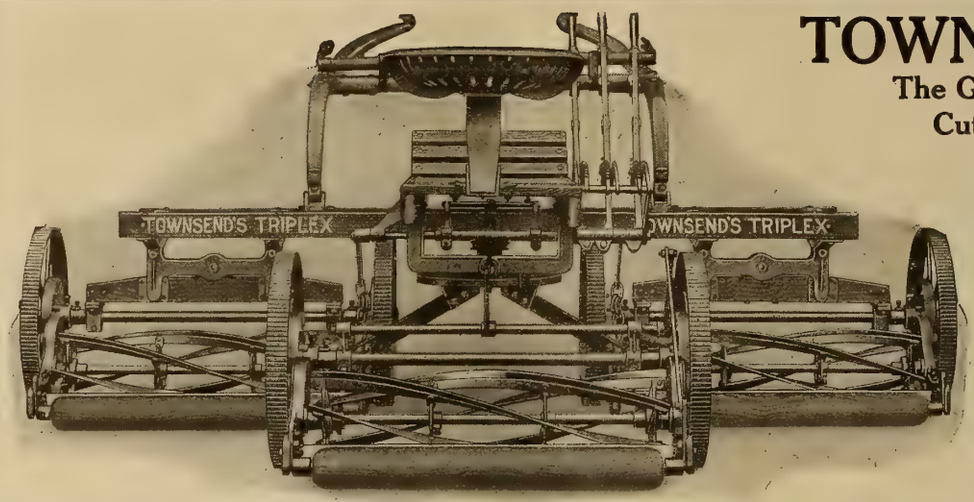

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The Greatest Grass-Cutter on Earth
Cuts a Swath 86 Inches Wide

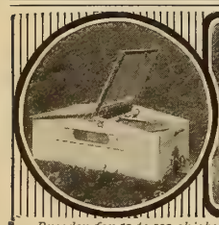
Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horse-drawn mowers with three horses and three men. (We guarantee this.)

Floats over the uneven ground as a ship rides the waves. One mower may be climbing a knoll, the second skimming a level, and the third paring a hollow. Does not smash the grass to earth and plaster it in the mud in springtime, nor crush out its life between hot rollers and hard, hot ground in summer, as does the motor mower.

Send for catalog illustrating all types of Townsend Lawn Mowers

S. P. TOWNSEND & CO., 23 CENTRAL AVENUE ORANGE, N. J.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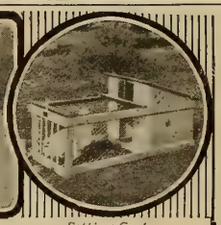
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Shows how to stop every leak. Latest and most efficient ways of handling poultry. Up-to-date appliances—poultry necessities—remedies. Every poultryman can increase his profits by reading this instructive book written by the originator of Premier Barred Rocks. Write to-day—it's *absolutely free.*

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This fence cannot be pulled apart—patent clamped joints keep the wires from slipping or twisting out of position. The finished fabric is dipped into molten zinc which thickly covers every particle with a rust-resisting metal coating.

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This sturdy little sprinkler will do away with brown, burned patches in your lawn. It will revive your flowers and vegetables that are drooping for want of moisture. It can be placed wherever convenient and will give a fine, mist-like spray that gently saturates vegetation.

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Author of CROWDS

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Not only solve them but turn every one of them into lasting satisfaction, just as they have done for thousands of more-than-satisfied Skinner System users all over the country, and in many foreign ones.

Portable and Permanent Lines

For your flower and vegetable gardens, either our Portable or Stationary Sprinkling Lines will effectually water a space 50 feet wide and of varying lengths. You can just as efficiently and just as easily water a number of acres as you can a few square feet. It is entirely a question of your needs.

All you do is turn the water on; and then turn it where you want it to water, and let it water.

Over every inch of the ground, will uniformly fall a *gentle, beneficent,* fine rain that is warmed as it passes through the air, and *promptly absorbed* by the ground as it falls.

No puddling. No watering of some parts more than others. No packing of the soil. No injuring even the most delicate seedlings. The amount of water and the distribution, are under your absolute control. You can water one row or all the rows.

You can have our Standard Portable Line attached to your garden hose; one so it can be quickly taken down and set up again as needs require. Or you can have the permanent equipment with direct pipe connections from your water supply.

A complete 50 foot Portable Line costs so little as $13.75 and will water 2,500 square feet. 100 foot line $26.25 and other lengths in proportion. Prices for Permanent Line according to lengths needed.

Portable Oscillator

Then there are our Portable Automatic Oscillating Lines that can be placed anywhere on your lawn or in your garden, watering a space 50 to 60 feet wide and 50 to 200 feet long.

Portable Automatic Oscillator Sprinkler, watering a formal garden 200 feet long. Lengths of pipe can be easily disconnected and put across rack and wheeled away. Send for circular and prices

This Lawn Mist throws clouds of fine spray over a 20 foot width. Mounted on wheel truck and stand. Can be used on both lawn and garden. Order one. If not more than satisfactory, your money cheerfully refunded.

12 foot length—$7.85 15 foot length—$8.85 18 foot length—$9.85

All above mounted on wheel truck and stand.
Lawn Mist Junior—9 feet long—mounted on stands—$4.85

The entire length of pipe is automatically rotated back and forth, from side to side, watering every part evenly.

Hour after hour it will work, taking 20 minutes to make a complete oscillation, or two hours. The control is entirely yours.

For formal flower gardens or extensive lawns, this Automatic Oscillator is truly a wonder worker. It is extensively in use on such estates as C. Oliver Iselin, Long Island; F. S. Moseley, Boston; J. L. Severance, Cleveland; C. L. Post, Battle Creek, and others.

Lawn Mist

For smaller lawns, there is the Lawn Mist that scatters its watery refreshment in a mist cloud, that in a surprisingly short time uniformly saturates the soil down to the very root ends—and beyond.

It induces that *long root growth* so essential to a perfect lawn turf. It prevents the growth of weak surface roots which are responsible for so many lawns browning up with the first hot suns.

For moderate sized gardens, it is also just the thing. Made in four different lengths. Standard sprinkler covers 20 foot width. Can be connected by flexible coupling, watering around a corner if desired.

Made in four lengths, the longest one—18 feet—equipped with wheel truck and stand, costs $9.85. The shortest or Junior size—9 feet long, with two stands—$4.85.

Remember there is a right and a wrong way to water. Every Skinner System equipment is right in principle and proven right in practice.

Send for full particulars of any one; or all three solutions to your watering worries.

Our Guarantee

It isn't merely a guarantee—it is more. Anything purchased of us which is not entirely as represented, can be returned within thirty days after its arrival, full credit will be given and any money already paid, will be immediately refunded.

If after you place an order with us and become more familiar with our full line, you find that you would prefer some other form of our sprinkling equipment, we will allow you to return your original purchase, f. o. b. Troy, Ohio, for full credit to be applied on the substitute. This offer holds good sixty days after the date of any invoice.

THE SKINNER IRRIGATION CO.
219 Water Street **Troy, Ohio**

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